

national

SAFETY NEWS

MAY 1955

THIS MONTH

- Skyscraper Can Be Safe
- Too Many Solvents?
- The Doctor Studies Industry's Noise



EQUIPMENT
PLUS
KNOW-HOW





Mrs. Louise Bane holds her twins, Billy (right) and Wendy (left). Fire Chief Masie is at the right, Assistant Chief Jones at left.

The Rescue of Wendy Bane

Two-month-old Wendy Bane, a twin, was limp and unconscious when the family physician and firemen from the Rennerdale, Pa., Volunteer department hurried into the house. Her respiration had been blocked as the result of a choking spell.

The physician's examination detected no heart beat. He motioned to Fire Chief Jim Masie and Assistant Chief Herb Jones. They quickly strapped the facepiece of a Pneolator over Wendy's nose and mouth. All watched her intently as the instrument fed life-giving oxygen into her tiny lungs. Seconds passed.

Then the physician moved his stethoscope over Wendy's chest again. He looked up. His relieved face told that the heart beat had started. A few hours in the hospital completed the cure. Wendy was taken home.

This was the first emergency case for Rennerdale's Pneolator since the unit was donated to the department by the Woman's Auxiliary. Wendy's mother, Louise, a registered nurse, really means it when she says: "I'll love those ladies the rest of my life."

MINE SAFETY APPLIANCES COMPANY

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THE M-S-A PNEOLATOR

Automatic artificial respiration device that intermittently inflates lungs to a pre-determined pressure, then cuts off to permit exhalation by natural recoil of chest and diaphragm. Regulator compensates for age and physical condition of patient. Includes facepieces in two sizes—for adult and child. Portable, rugged, dependable. Write for details.





Even workers wearing glasses say they "never had it so COMFORTABLE!"

High flexibility

Pliable frame permits wearing for hours in comfort.

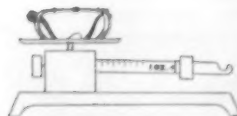
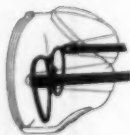


Easy-to-change lens

Replaceable lenses cut cost—no need to replace entire goggle. Lens held firmly in molded groove.

Wearing comfort

Channeled sides of frame give comfortable clearance over spectacle temples.

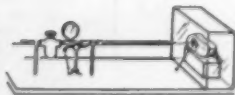


Light in weight

Can be worn all day without fatigue—encourage continuous protection.

Impact resistance

Pass recognized tests for impact protection as listed in Federal Specification GGG-G-531a, Goggles and Spectacles, all plastic, industrial.



Workers who wear prescription glasses—even big plastic frames—are mighty glad to get the extra roominess provided by NO. 90A MONOGOGGLES. Its greater clearance results in utmost comfort.

Exclusive Willson features described at left encourage workers to wear these sturdy MonoGoggles. Note how large flat .060 plastic lens provides "picture-window" scope of vision—how the deep, transparent light green frame admits side vision while eliminating glare.

Ask your Willson distributor to demonstrate its unique protection against light impact hazards like those found in spot welding, buffing, woodworking and chemical handling. You have a choice of ventilated or non-ventilated frames, clear or green plastic lenses. Bulletin mailed promptly on request.

**Every exclusive feature in NO. 90A MONOGOGGLES®
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SAFETY NEWS

Published monthly by National Safety Council

MAY, 1955

THE COVER: Jim Fenton, lineman first class for The United Illuminating Company of Bridgeport, Conn., looks over the job. Back of his confidence are years of training and the equipment that will enable him to do the work safely and efficiently. Photo courtesy U. I. News)

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National Safety Council Awards for Outstanding Records

THREE TYPES of awards are given by the National Safety Council to industrial units in recognition of outstanding performance in accident prevention:

1. THE AWARD OF HONOR is available to units whose records, though not perfect, meet rigorous standards of excellence. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency rate and severity rate. The Award of Honor is available also to units which complete 3,000,000 man-hours without a disabling injury.

2. THE AWARD OF MERIT has similar, but less exacting requirements. Minimum number of injury-free man-hours needed to qualify is 1,000,000.

3. THE CERTIFICATE OF COMMENDATION is available only for injury-free records covering a period of one or more full calendar years and totaling 200,000 to 1,000,000 man-hours.

Details of eligibility requirements may be obtained by writing to the Statistical Division, National Safety Council.



AWARDS OF HONOR

E. I. du Pont de Nemours & Co., Wilmington, Del., Entire company.
Ford Motor Co., Two awards: Entire company; Buffalo Stamping Plant.
General Aniline & Film Corp., Chemical & Dyestuff Division, Linden, N. J.
Goodyear Atomic Corp., Portsmouth, Ohio, Entire company.
Kingan, Inc., Indianapolis Plant.
Merck & Co., Rahway, N. J., Entire company.
NACA Lewis Flight Propulsion Laboratory, Cleveland.
Republic Steel Corp., Entire company.
Union Oil Co. of California, Research & Process Department, Los Angeles.
U. S. Steel Corp., Five awards: American Steel & Wire Division, Cuyahoga Works, Cleveland; Consolidated Western Steel Division, Orange Plant, Los Angeles; Gary Sheet & Tin Mill, Pittsburgh; National Tube Division, Lorain, Ohio.
Western Electric Co., Indianapolis (Ind.) Works.

AWARDS OF MERIT

The B. F. Goodrich Co., Akron (Ohio) Reclaim Plant.

Blaw-Knox Co., Chemical Plants Division, Richland, Wash.
Celanese Corp. of America, Charlotte, N. C., Entire company.
Consolidated Paper Corp., Ltd., Laurentide Division, Grand Mere, Quebec, Canada.
Dravo Corp., Pittsburgh, Entire company.
Fischer Lime & Cement Co., Fischer Steel Plant, Memphis.
General Electric Co., Lamp Division, Ten awards: Bellevue (Ohio) Lamp Works; Cleveland Equipment Works; Cuyahoga Lamp Works, Nela Park, Cleveland; Euclid Lamp Works, Cleveland; Lexington (Ky.) Lamp Works; Mahoning Glass Works, Niles Ohio; Memphis Lamp Works; Nela Lamp Works, Nela Park, Cleveland; Ohio Lamp Works; Trumbull Lamp Works, Warren, Ohio.
The Goodyear Tire & Rubber Co., New Toronto (Canada) Plant.
International Harvester Co., Memphis Works.
Iowa Power & Light, Des Moines Power Station.
Northwest Airlines, Inc., Line Maintenance & Base Repair Shop, St. Paul, Minn.
Rheem Manufacturing Co., New Orleans Plant.

Sinclair Refining Co., Wellsville Refinery, East Chicago, Ind.

Tennessee Valley Authority, Divisions of Power, Chattanooga.

U. S. Rubber Co., Two awards: Asbestos Plant, Hogansville, Ga.; Shelbyville (Tenn.) Mills.

U. S. Steel Corp., Eight awards: Consolidated Western Steel Division—Berkeley (Calif.) Plant, Maywood (Calif.) Plant, South San Francisco Plant; National Tube Division—Elwood Works (Elwood City, Pa.), Gary Works (Pittsburgh), National Works (McKeesport, Pa.); Tennessee Coal & Iron Division—Concord Mine (Bessemer, Ala.), Zinc Mines (Jefferson City, Mo.).

Wood Conversion Co., Cloquet, Minn., Entire company.

CERTIFICATES OF COMMENDATION

American Cyanamid Co., Two awards: Hamilton (Ohio) Plant; Michigan City (Ind.) Plant.
A. O. Smith Corp., Product Service Division, Milwaukee.
Archer-Daniels-Midland Co., Two awards: Council Bluffs (Iowa) Branch; Milwaukee Oil Mill.
Dow Chemical Co., Ally's Point Division, Gales Ferry, Conn.
The Firestone Tire & Rubber Co., Three awards: Bennettsville (S. C.) Textile Mill; Memphis Floation Gear Plant; Memphis Xylos Division.
Fischer Lime & Cement Co., Two awards: Concrete Products Co., Memphis; Ready Mix Concrete Plant.
General Electric Co., Lamp Division, Eight awards: Base Machine Works; Bucyrus (Ohio) Lamp Works; Chemical Products Works, Cleveland; Cleveland Lamp Works; Jackson (Miss.) Lamp Works; Lamp Development Laboratory, Nela Park, Cleveland; Nela Press; Oakland (Calif.) Lamp Works.
Koppers Co., Inc., Tar Products Division.
 —To page 141

NEW LIGHTWEIGHT MICROCELLULAR NEOPRENE-CORK SOLES

add long wear and comfort

to trim safety shoes

by



Courtesy:
Iron Age Division
H. Childs & Co., Inc.
Pittsburgh, Penna.



They're sturdy safety shoes—but a look would never tell you. There's no hint of the steel box toes under those pebble-grain leather uppers. No work shoe "look" in the lightweight, cellular neoprene-cork soles, storm welting or stitching of "Dacron." Yet, the entire shoe is built for rugged duty, just like those soles of resilient neoprene.

Oil, grease—even corrosive chemicals—have little deteriorating effect on durable neoprene soles. They hold their neat profile on hot factory flooring . . . resist severe scuffing and abrasion without chipping or cracking. And throughout their long service life they offer buoyant foot support—a flexible cushion for every step.

Because they combine comfort with extra-durability, neoprene soles are a practical choice for work and safety shoes. You'll find them on today's best-looking styles . . . today's "street-shoe" safety shoes.

*Du Pont's trade-mark for its polyester fiber

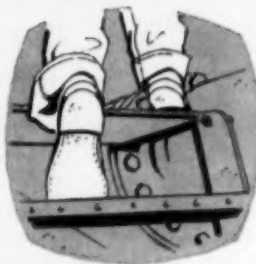
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THE SAFETY VALVE



We may as well tolerate all religions, since God Himself tolerates all.—FENELON.

We're Dealing with People

ITEMS STORED AWAY in the idea file seldom look as good when you dig them out as when you put them there. But here are some thoughts on dealing with our fellow human beings that haven't grown stale in storage. Unfortunately, there was no indication of their source so I can't give credit:

"Take your time; be willing to stand still and listen. Give the employee time to talk out his idea. The man in a hurry gets back to the sanctity of his office sooner, but he doesn't pick up much worthwhile information.

"Make a man look good in the eyes of his fellow workers and his family and you have performed a miracle in human relations.

"Give him a chance to tell the wife and kids 'what the boss said to me today' and you have done a job that will be reflected in that man's work efficiency and attitudes for days to come.

And here's a pompous platitude which filled a few lines at the bottom of a column—and that's about all you can say for it:

"Failures inspire pity—seldom admiration. The streets of the City of Failure are paved with alibis—some of which are almost perfect."

If the author of that one hasn't a few errors against him in his personal box score, he has never attempted anything—or just isn't human. Who's the real failure—the shortstop who muffs the line drive or the one who ducks the hot ones to keep his fielding average looking good?

And, as one champ of the ring put it: "I never learned anything from the fights I won."

Meals on Wheels

WHEN THE GENIAL steward seats you in his dining car, you wouldn't suspect that the railroad is going to lose money on every mouthful you eat. The deficit is an investment in public relations; the road hopes you'll like the food and service so well you'll continue to ride its trains.

According to the Eastern Railroad President's Conference, member railroads spent about \$1.54 for every dollar collected in the diner. And with 80,000,000 meals a year served, the loss begins to rival a governmental deficit.

The cost of the food that goes into the kitchen runs into huge figures each year but it's a relatively minor item in the total cost. The overhead is terrific.

Cost of one of these rolling restaurants ranges from \$165,000 for a modest buffet car to \$416,000 for a modern twin-unit diner. And it costs money to haul and switch it. No stationary eatery has comparable costs in proportion to meals served.

And, of course, there's air conditioning, heating and lighting.

So, if the menu spoils your appetite when read from right to left, get as much satisfaction as you can from the fact that a third of the check is on the house.

In This Issue . . .

Handling material is one of industry's serious sources of accident and stevedoring operations have plenty of it, often under difficult conditions. A safety program started before World War II proved its worth in wartime when ships were being loaded and unloaded around the clock and continued to make progress since hostilities ended. (Page 18)

* * *

Safety for the operator is one of the important considerations in designing machines for the automatic age. Here are some of the features machine tool manufacturers are incorporating in their products. (Page 22)

* * *

Noise continues to attract the attention of industrial engineers and physicians. Some of the medical aspects of the problem are discussed in this article. (Page 24)

* * *

"Better living through chemistry" has brought a lot of new solvents into the industrial picture—some relatively harmless, some definitely toxic, and others still unknown as to their lethal qualities. (Page 28)

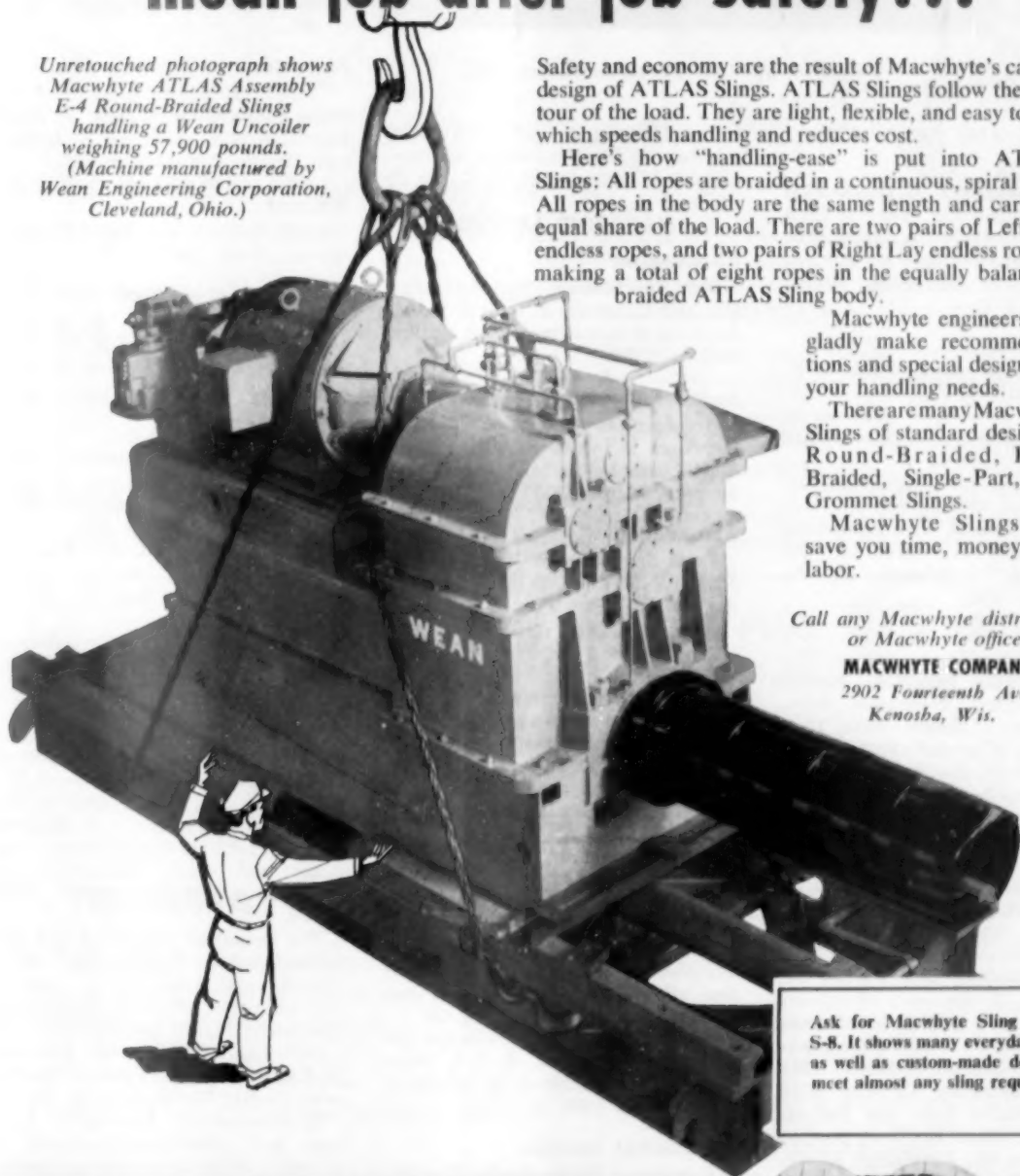
* * *

The employee who sneaks a smoke around combustible materials continues to be one of industry's chief menaces. Our fictional safety engineer has a plan which at least is worth trying. Our hero would undoubtedly like to hear from any of you who have the problem licked. (Page 36)

Carman Fish

Flexible, lightweight ATLAS Slings mean job-after-job safety...

Unretouched photograph shows Macwhyte ATLAS Assembly E-4 Round-Braided Slings handling a Wean Uncoiler weighing 57,900 pounds. (Machine manufactured by Wean Engineering Corporation, Cleveland, Ohio.)



Safety and economy are the result of Macwhyte's careful design of ATLAS Slings. ATLAS Slings follow the contour of the load. They are light, flexible, and easy to use, which speeds handling and reduces cost.

Here's how "handling-ease" is put into ATLAS Slings: All ropes are braided in a continuous, spiral path. All ropes in the body are the same length and carry an equal share of the load. There are two pairs of Left Lay endless ropes, and two pairs of Right Lay endless ropes—making a total of eight ropes in the equally balanced-braided ATLAS Sling body.

Macwhyte engineers will gladly make recommendations and special designs for your handling needs.

There are many Macwhyte Slings of standard design in Round-Braided, Flat-Braided, Single-Part, and Grommet Slings.

Macwhyte Slings can save you time, money, and labor.

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Ask for Macwhyte Sling Catalog S-8. It shows many everyday slings, as well as custom-made designs to meet almost any sling requirement.

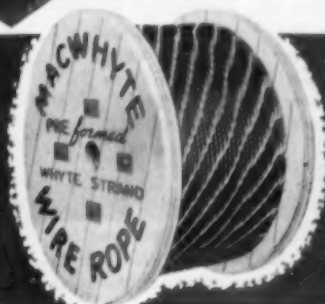
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THE SAFETY LIBRARY



Books, Pamphlets and Periodicals of Interest
to Safety Men

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BOOKS AND PAMPHLETS

Civil Defense

Facts About the H-Bomb—that could save your life. Federal Civil Defense Administration. 1955. 5 p. \$2.75 per 100. For sale by the Superintendent of Documents, Washington 25, D. C.

Fire Protection

Fire Tests for Brick Walls. S. H. Ingberg. National Bureau of Standards. 1954. 52 p. 35c. For sale by the Superintendent of Documents, Washington 25, D. C.

Safety Code for Inspecting, Recharging and Maintaining Portable Fire Extinguishers. Fire Equipment Manufacturers Association, 813 Clark Bldg., Pittsburgh 22, Pa. 1955. 12 p. 50c.

Mines

Central Mine Rescue Station. The Cleveland-Cliffs Iron Co., Mather Mines, B Shaft, Negaunee, Mich. U. S. Bureau of Mines. 1954. 17 p. Information Circular 7702. Free. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Elimination of Ethyl Mercaptan Vapor-Air Explosions in Stench Warning Systems. U. S. Bureau of Mines. 1954. 8 p. Report of Investigation 5090. Free. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

A National Analyzer for Solving Mine-Ventilation-Distribution Problems. U. S. Bureau of Mines. 1954. 13 p. Information Circular 7704. Free. Available from the Bureau, Publication Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Testing for Methane in Out-of-Reach Places. U. S. Bureau of Mines. 1954. 9 p. Information Circular 7703. Free. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Workmen's Compensation

State Workmen's Compensation Laws as of September, 1954. U. S. Bureau of Labor Standards. 1955.

56 p. Bulletin No. 161. 25c. For sale by the Superintendent of Documents, Washington 25, D. C.

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Absenteeism

Sick Absenteeism. Norman Plummer and Lawrence E. Hinkle. AMA Archives of Industrial Health, March 1955, p. 218.

Accident Proneness

Accident Proneness—A Clinical Approach to Injury-Liability. Allen A. McLean. Industrial Medicine and Surgery, March 1955. p. 122.

Aeronautics

From Sprinklers in USAF Hangar. Joseph K. Schmidt. Quarterly of the National Fire Prevention Association, Jan. 1955. p. 327.

Chemicals

Aromatic Hydrocarbons. III Presence in the Particulate Phase of Diesel-Engine Exhaust and the Carcinogenicity of Exhaust Extracts. Paul Kotin and others. AMA Archives of Industrial Health, Feb. 1955. p. 113.

Observations on the Toxicity of Nitromethane. J. H. Weatherby. AMA Archives of Industrial Health, Feb. 1955. p. 102.

Toxicity of Di-tert-butyl Methylphenol. William B. Deichmann and others. AMA Archives of Industrial Health, Feb. 1955. p. 93.

Toxicity Tests of Decaborane for Laboratory Animals. I. J. L. Sirrby. AMA Archives of Industrial Health, Feb. 1955. p. 132.

Commercial Vehicles

Correcting Brake Faults Shortens Stops Significantly. F. William Petring. SAE Joruanl, March 1955. p. 61.

Electrical Industry

Cable-Reel Loader Is Safe and Fast. J. C. Cox. Electric Light & Power, March 15, 1955. p. 87.

Fire Protection

Fire Protection Developments in

1954. Percy Bugbee. Quarterly of National Fire Protection Association, Jan. 1955. p. 194.

How to Eliminate Fire Hazards in Metal Plants. Pacific Factory, March 1955. p. 42.

Large Fire Losses in 1954—Summary. Quarterly of National Fire Protection Association, Jan. 1955. p. 198.

Foundries

Clinical Lead Intoxication from Brass Foundry Operations. D. John Lauer. A.M.A. Archives of Industrial Health, Feb. 1955. p. 107.

Goggles

Sight Sowers. American Foundryman, March 1955. p. 56.

Handicapped Workers

Industry Asks: Are Blind Machinists Safer? Clifford M. Witcher. American Machinist, March 14, 1955. p. 152.

Health

Asbestosis as Differentiated from Other Pneumoconioses. G. A. Sander. AMA Archives of Industrial Health, March 1955. p. 208.

Chlorinated Insecticides: Toxicity for Man. Lemuel C. McGee. Industrial Medicine and Surgery, March 1955. p. 101.

Developments in the Sampling of Air-Born Dust. Theodore Hatch. AMA Archives of Industrial Health, March 1955. p. 212.

Functional Abnormalities of Industrial Pulmonary Fibrosis. George W. Wright. AMA Archives of Industrial Health, March 1955. p. 196.

Industrial Hygiene and Medical Survey of a Thorium Refinery. Roy Albert and others. AMA Archives of Industrial Health, March 1955. p. 234.

The Industrial Hygienist and Ear Protection. D. E. Wheeler. D. E. Wheeler and Aram Glorig. American Industrial Hygiene Association Quarterly, March 1955. p. 40.

Pathology of Asbestosis. Kenneth M. Lynch. AMA Archives of Industrial Health, March 1955. p. 185.

Roentgenologic Aspects of Silicosis and Asbestosis. Leonard J. Bristol. AMA Archives of Industrial Health, March 1955. p. 189.

Some Clinical Observations of Asbestosis in Mines and Mill Workers. Paul Cartier. AMA Archives of Industrial Health, March 1955. p. 204.

Threshold Limits—A Panel Discussion. James A. Sterner. Organic Vapors—Allan L. Coleman; Permissible Dustiness, Theodore Hatch;

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COMFORT PLUS 100% PROTECTION

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MODEL 441SV — clear frame **461SV** — green frame
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Clear Lens (AC) .060" thick. Green Lens (AG) .050" thick.

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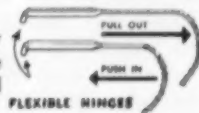
Worn 100% of the time

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THE READERS' POINT OF VIEW



Comments on topics of current interest are invited. They need not agree with the editors' opinions.

Letter from Italy

ROME.—This first World Congress in Rome has been attended by 361 representatives from 33 nations (6 of which are under the Russian sphere), and the occasion has been a gala one, what with receptions in Renaissance palaces, meetings with the Italian Minister of Labor, The Mayor of Rome, etc.

America being tops in safety practice, the story of its accomplishments would have been most pertinent and welcome. Here many speakers told of rules and regulations. One even pleaded for prison terms for those involved in industrial accidents! How different from the attitude in America where the whole concept of safety is one of willing cooperation and competition.

I have been struck by the fact that safety is a big subject. What else has such world-wide appeal, and what else provides a more sympathetic common ground for world cooperation?

A second Congress is planned by Belgium for 1958. This time I hope the National Safety Council will attend.

As the lone American representative (at the invitation of the U. S. Department of State and the Bureau of Labor Statistics of the U. S. Department of Labor), I have been graciously welcomed. Through the Italian organization of ENPI (National Society for the Prevention of Accidents), I will go on a tour of Italy to include Turin, Milan, Padua, Florence, Salerno, Naples and Palermo, accompanied by an interpreter and by an Italian expert on productivity. My story, of course, will concern functional color and its

application to improved working conditions and reduced accidents.

I wish I knew more about safety practice, and I wish I had someone from the National Safety Council at my side to help out. Safety has come a long way!

FABER BIRREN

Mr. Birren is internationally known for his research in the functional uses of color. The paper which he presented at the Congress in Rome will appear in the June issue.—Ed.

Accident Costs

PARAMOUNT, CALIF.—Rollin H. Simonds' article on Accident Costs in the April issue suggests an approach to the problem which certainly merits a lot of attention by everyone concerned with industrial injuries. I have long felt that our use of the phrases "3 to 1" or "4 to 1" in considering the ratio of indirect to direct costs is confusing and unconvincing. Certainly, here is a subject which needs a lot of research and positive thinking.

Mr. Simonds' article was all too short to provide sufficient data for a comprehensive use of his theory by most people, myself included. However, it would be interesting to know how he plans to use the factor of industry type in his calculations.

Our firm is engaged in general construction. It is seldom that one

of our jobs would be located so as to provide on-the-job medical attention except on large projects where we have a doctor or a full-time first-aid attendant. In most cases it is necessary to transport an injured employee considerable distance to the nearest emergency medical facilities.

In the majority of such cases the cost in transportation, time of the injured worker and time of travel and waiting for medical attention exceed the insured costs several times over. In actual surveys we have found these uninsured costs to be four times the insured costs.

Mr. Simonds' observations appear to be limited to industrial plants. Considering the great volume of work being done in general construction, it is suggested that he direct a portion of his research to that phase of industry and develop a formula which contractors can use.

F. D. KELLY

*Supervisor, Safety and Claims
Macco Corp.*

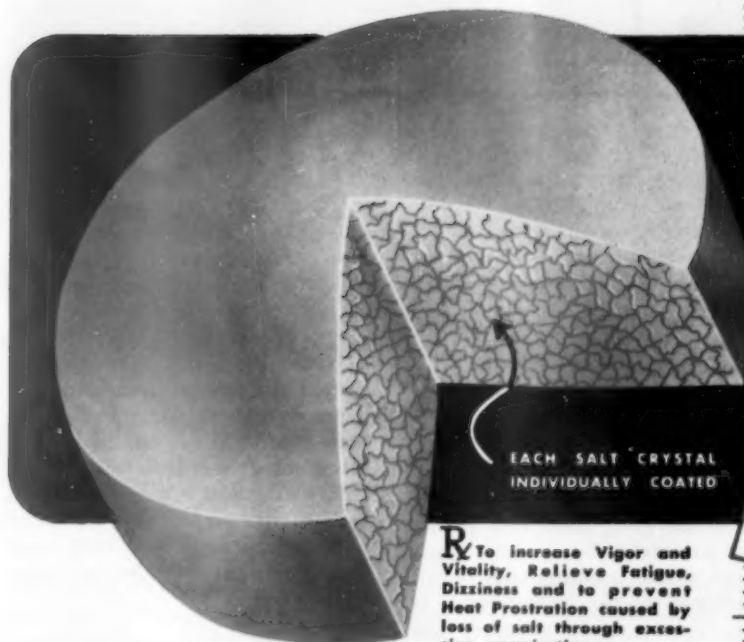
DOVER, DEL.—I have read the article, "What Are the True Costs of Accidents?" by Rollin H. Simonds, and I do not see any provision in his chart for the production loss, that in my experience, has been inevitable in connection with lost-time injuries. I have found these losses to be a major

—To page 104



Faber Birren, well known authority on color, stops in front of the U. S. Department of Labor exhibit at the International Safety Congress in Rome.

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CASES for COMMENT

Compiled by
ROBERT D. GIDEL
Senior Consulting Engineer
Industrial Department, NSC

IS THAT INJURY chargeable to your occupational injury record?

In some cases there is reasonable doubt as to whether the injury arises out of or in the course of employment. This can usually be decided by consulting ASA STANDARD CODE Z16.1-1954. If there is any doubt as to interpretation of the Code, the Committee of Judges of the American Standards Association's Sectional Committee is available to review the facts.

A few cases are discussed here. It is hoped they will aid readers not only in determining the chargeability of accidents but also in planning preventive measures.

Cancer

At quitting time one afternoon a meter repairman complained to his supervisor that at about 2:00 p.m., while helping push a meter weighing approximately 60 pounds across a bench, he felt a pain in his right hip. It was a dull ache and he did not consider it disabling. Next day the man reported for work at the usual time and worked all day without complaint. The day following, shortly after he reported for work, his supervisor inquired as to how he felt and the man said that the ache was still there. The supervisor sent him to the doctor.

Following the complete physical examination, X-ray studies and laboratory work, it was reported that the man was suffering from multiple myeloma of the hip (cancer). Opinions of the doctors indicated that the condition was neither caused nor aggravated by the alleged accident. In fact, the specialists stated that in their opinion there was no accidental injury; that the pain felt when pushing the meter was simply the onset of pain associated with the disease. The man, in all probability, will never return to work.

Decision. The injury should not be included in the industrial injury rates. It had been stated that in the opinion of the medical men who examined and treated the employee there was no relationship between the incident and the employee's cancer.

Comment. Here is another illustration of how medical opinions are often controlling in determining chargeability of injuries.

Physical examinations at the time of employment and periodic re-examinations make available a medical history of employees. Hernias, hearing disabilities, visual difficulties and other weaknesses should be recorded for future reference in case of question and particularly to be of help in placing employees on the job.

Temporary Maintenance

The company had two plants approximately 50 miles apart. When major maintenance work developed at the larger plant, it was customary to augment the larger plant's maintenance force with maintenance men from the other plant for the duration of the job.

Recently such a job developed at the larger plant and 90 maintenance employees were sent from the smaller plant for an estimated period of one month to complete the job. There were certain conditions set up regarding the temporary use of these men; the men were to receive, in addition to their regular pay, \$11 per day living expenses while at the larger plant. Some men chose to pocket the \$11 and drive the 100 miles in their own cars from their homes to the site of the job; on the first and last days, only, of their six day work week the men were allowed an additional two hours pay (at time and a half) to cover time spent in traveling between the job and their homes; they were allowed \$2 to cover train or bus fare between the two plants on the first and last days of their work week. Here again, some of the men chose to drive their own cars.

At 5:30 a.m., two of the men were returning home at the conclusion of their six-day work week (night shift), one of the employees driving his car with the other as passenger. They were traveling on the main highway when a traffic light at an intersection turned red against them and they stopped to wait for the light to turn green. In the meantime, another car driven by a young man who had fallen asleep struck the rear of the employee's car. The impact was so severe that each man lost seven calendar days from work.

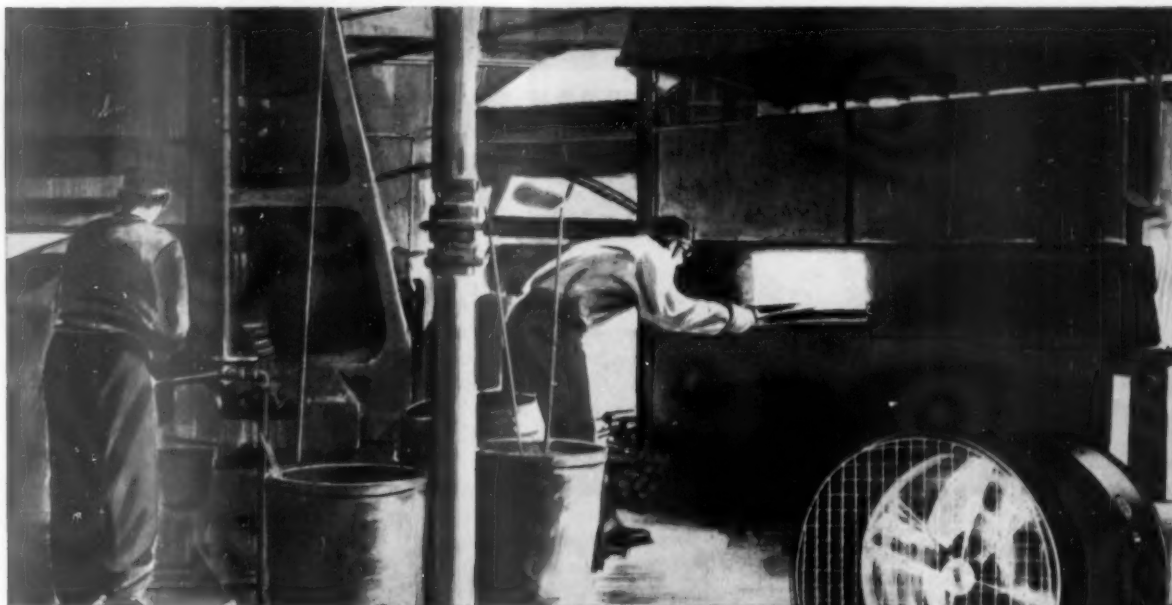
Decision. This injury should be included in the company's rates. Employees were paid for the time spent in this travel operation so the injuries occurred within the scope of employment.

Comment. This occurrence raises the question whether proper consideration was given to all factors which could possibly arise in such an operation. Do the employee relations factors outweigh the additional hazards involved in allowing employees this much discretion in such a situation? There are certain public liability and public relations problems involved in such operations also. Before such operations and arrangements are made, it would be worth while to have a special training session with the men to emphasize the hazards involved and liabilities undertaken.

Rear End Collision

A driver of a company stake truck was proceeding to the destination of delivery. The driver

—To page 140



COOL HEADS IN "HOT SPOTS" WON'T LET YOU DOWN

On jobs where the air is foul or hot, men can't be blamed too much for letting up now and then. If you want to keep their efficiency and morale high, feed them better air.

Employers have learned the value of putting Coppus Blowers and Ventilators on the job . . . in confined areas and near furnaces or hot processes. The men work faster, do better work, work longer without fatigue — and appreciate the more comfortable working conditions.

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Wire from WASHINGTON

By HARRY N. ROSENFELD

Washington Counsel, National Safety Council



WASHINGTON has been hearing some hot debate over conflicting proposals concerning Federal participation in highway construction; other safety matters have also reached the stage of Congressional hearings.

Highways. The Senate Subcommittee on Roads continued its hearings on S. 1048 (Gore), which would authorize \$1.6 billion for Federal-aid for highways, and on S. 1160, the Administration program for a Federal Highway Corporation which would finance \$25 billion worth of construction through the issuance of bonds.

On the financial issues, strongly divergent views were expressed by governmental and other witnesses.

Safety figured explicitly in the Senate hearings. Sidney J. Williams, Assistant to the President of the National Safety Council, urged that "in the further development of the national highway program the aim be not merely more roads but better, safer roads, as an indispensable element in a truly efficient highway transportation system." The National Safety Council was not appearing on the economic and fiscal issues involved, or for or against any particular measure, but rather as experts on the safe use of highways. Mr. Williams said: "A vital part of this program is to build safety into our highways... a highway built to safe specifications will make some types of accidents much less likely; will make it a lot easier to drive safely."

Another safety witness was Carl E. Fritts, vice-president of the Automotive Safety Foundation, who testified on the relationship of highway improvements to the accident problem, and brought to the committee's atten-

tion the latest proof that "modern design features and adequate capacity can contribute importantly to safety on all roads." He told the committee that 3500 lives could be saved each year by completion and modernization of the interstate highway system.

The Senate committee plans to hold 9 regional hearings, in the following cities: Albany, N. Y.; Atlanta, Ga.; Hagerstown, Md.; Chicago, Ill.; Kansas City, Mo.; Fort Worth, Tex.; San Francisco, Calif.; Portland, Ore.; and Denver, Col.

A new development in the Senate was the introduction by Senator Case (an original co-sponsor of the Administration bill) of a new bill, S. 1573, which would authorize Federal appropriations of \$1.8 billion a year for 10 years, half to be used for interstate highways and half for other roads. The program would be financed out of a special license fee on trucks and buses, and would contemplate bridge and tunnel toll fees on interstate highways.

The House Committee on Public Works has completed public hearings on H.R. 234, 235, and 2127, bills proposed by the Bureau of Public Roads to recodify the present federal-aid laws, and has scheduled some 6 weeks of public hearings on the highway financing bills.

Industrial Safety. No action has been scheduled in either the Senate or in the House on the bills introduced to carry out the President's proposed program of grants-in-aid to states for the development and expansion of industrial safety programs. (See Wire From Washington for March and April). The bills are: S. 1091 (Smith and others), and H.R. 4877 (Bailey).

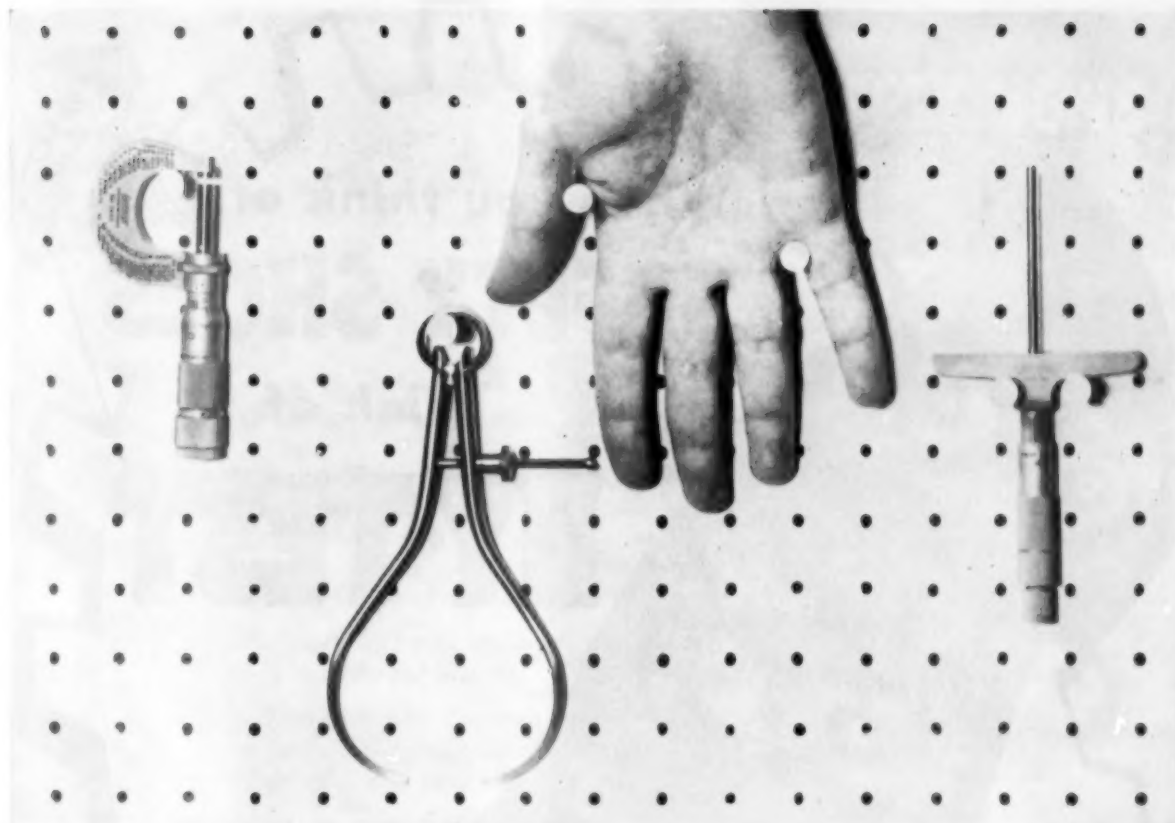
Air and water pollution continue to attract considerable Congressional interest. The House of Representatives voted to appropriate an additional \$743,000 to the Public Health Service for research in connection with air and water pollution control and for basic laboratory facilities and activities in this field. The appropriation bill still awaits Senate action. A House committee is planning hearings, toward the end of May, on H.R. 414, 3426 which would extend the Water Pollution Control Act. S. 1565 (Capehart, Knowland, Kuchel) proposes a new title in the National Housing Act, to provide authority for technical research and studies on air pollution and to establish a loan program to aid in the installation of air-pollution prevention equipment.

Railroads came to the fore in certain recently introduced bills. H.R. 4691 (Priest), 4905 (Miller), 5038 (Roosevelt) would amend the present act to promote the safety of railroad employees and travelers by limiting hours of work. H.R. 4832 (Zelenko) would amend the Safety Appliance Acts so as to aid safety on railroads. And S. 1482 (Kefauver) would authorize the Interstate Commerce Commission to prescribe minimum standards of safety for railroad tracks, bridges and related facilities (except locomotives and cars) necessary for railroad operation, and would establish a follow-up inspection service.

The Bureau of Mines amended its regulations concerning blasting and stemming devices and explosives.

Home Safety. The House of Representatives voted to increase the appropriation to the Food and

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WHICH TOOLS COST YOU THE MOST?

Of All The Tools Illustrated Above, The Most Costly—by far—Are Your Worker's Hands! Your plant probably is spending thousands every year keeping tools and machinery in good shape. O.K.—that makes sense! But, what about the most expensive production tools you use—your worker's hands? Are you risking them on cheap, inefficient profit-stealing, irritating "bargain" soaps? Industry has too long "hush-hushed" the existence of dermatitis in its plants. Today, intelligent management is bringing this problem out in the open . . . and doing something about it! It might be hard to "put your finger on" the cost of un-

healthy hands in your plant . . . but medical case histories by the score underline one fact — *it will pay you to look into scientifically formulated skin cleansers.*

Here's how you can effect a money-saving, production-saving, dermatitis-free condition in your plant — easy and fast. Let us put our 25 years of specialized "know-how" of industrial skin cleanliness to work for you. Send for descriptive literature offering a valuable SBS program for achieving skin health in your plant — for the very same amount of money you are now spending on ordinary hand soaps! Write to us today.

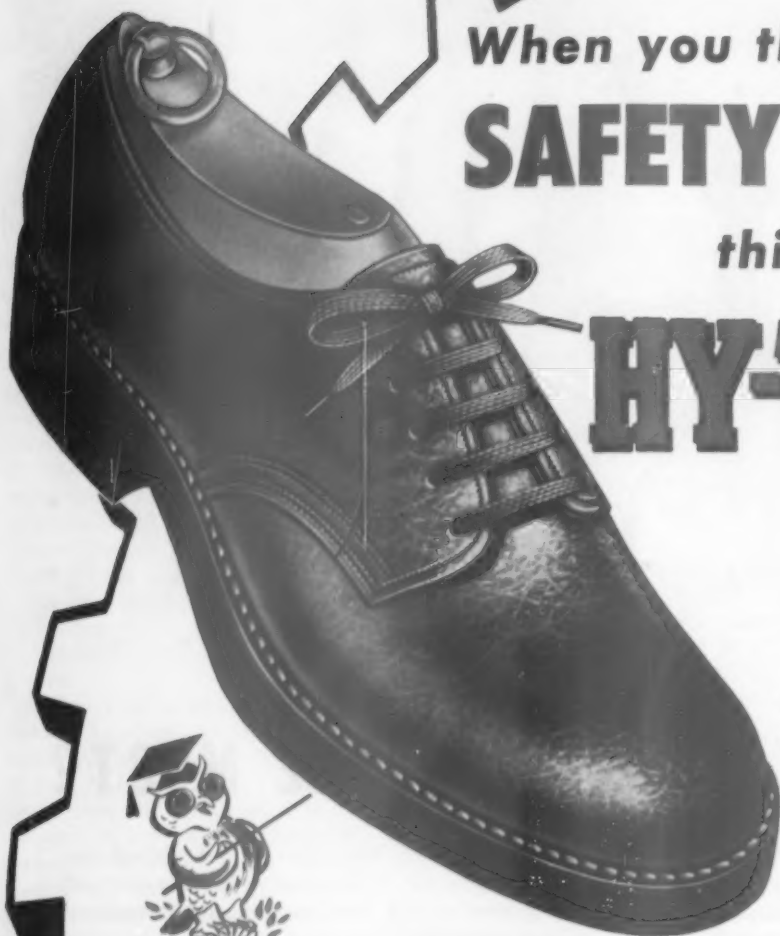
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Tools of the Trade

THE WHEEL has sometimes been called the most important invention of all time. Mechanically, that is undoubtedly correct. "A wheel in the middle of a wheel," to quote Ezekiel, describes many of our mechanical contraptions. In fact, you could say that about the whole industrial setup—organization as well as machinery.

And it doesn't take too much imagination to apply the prophet's words to traffic and aviation:

"... And when the living creatures went, the wheels went by them; and when the living creatures were lifted up from the earth, the wheels went with them.

"... For the spirit of the living creatures was in the wheels." Apparently it still is.

But there is one invention even more dynamic than the wheel—a set of 26 characters known as the alphabet. Where would we be today if our communications during the past 3,000 years had been limited to the spoken word and a system of hieroglyphics that only a few people could understand?

Communication is as vital in accident prevention as in any other field. Radio and TV are becoming increasingly influential but for lasting influence there is no substitute for the written word and the printed page.

In the alphabet both safety men and editors find a kit of extremely useful tools. Put together in the right combinations, they can convey valuable information and make effective appeals to emotion and reason.

Another contribution to progress is the Arabic numerals. Without them, the whole science of mathematics would have remained elementary. And just imagine keeping accident statistics and expressing frequency and severity rates in the clumsy Roman numerals used on monuments.

These tools are free and they have served us well. But all of us could improve our techniques for using them.

Stevedoring Can Be Safe

A safety program organized in 1937 continued to make progress, even during the war when ships were loaded and unloaded around the clock

By ROBERT P. ALDEN



The SS Lurline at its usual berth in Honolulu Harbor. Main office of Castle & Cooke Terminals, Limited, is located beneath Aloha Tower as seen across the bay.

CASTLE & Cooke Terminals, Limited, whose 1000 employees discharge or load approximately 36 ships per month operating from 15 piers in Honolulu Harbor, started their safety program back in 1937. At this time a safety engineer was employed and a basic safety program was formulated.

ROBERT P. ALDEN is Safety Administrator for Castle & Cooke, Limited, Honolulu, Hawaii. The company provides management services to seven affiliated companies, one of which is Castle & Cooke Terminals, Limited.

This program included the improvement of working conditions, the training of supervisors, the formulation of formal safety committees, the sale of protective equipment and clothing, and the recognition of good performance through safety awards to employees. The safety engineer reported directly to the general manager, who took active interest and supported the new program.

It wasn't long before overall acceptance of the program was reflected in improved safety performance. In spite of the fact that

during the war, ships were being discharged and loaded around the clock, and many longshoremen were inexperienced agricultural laborers, the accident trend continued downward.

Today, management's support of safety is stronger than ever. Progress made since 1937 has been ample reward for the effort, as evidenced in the frequency rate graph. The present rate of 17.7 which is considerably under the industry's average, is the result of this continued all-out safety effort, able guidance of the safety

division as well as the cooperation of all other divisions of the organization.

The safety division now consists of a safety administrator, a safety inspector, a registered nurse and a clerk.

The safety administrator coordinates all activities and guides the program from continued analysis of accidents and the results of safety inspections.

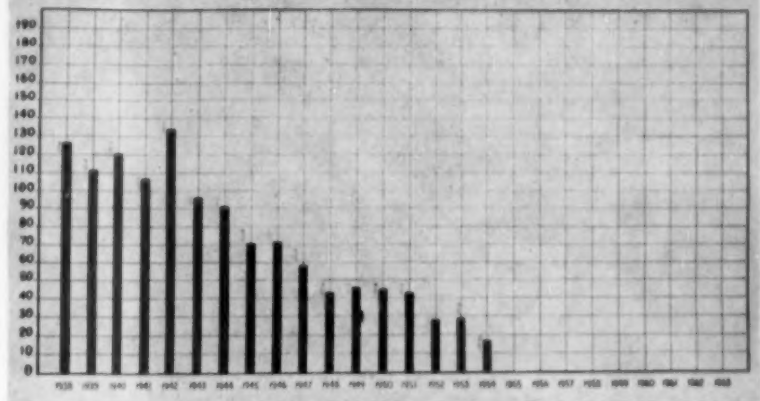
The safety inspector makes a thorough daily inspection of all stevedore and terminal operations. It is also part of his job to assist in the investigation of accidents and to follow up on all safety recommendations made. Safety recommendations receive immediate action, and priority work orders.

Medical Facilities. A well equipped dispensary is maintained with a nurse to treat minor injury cases, as well as illness. This has

CASTLE & COOKE TERMINALS, LTD.

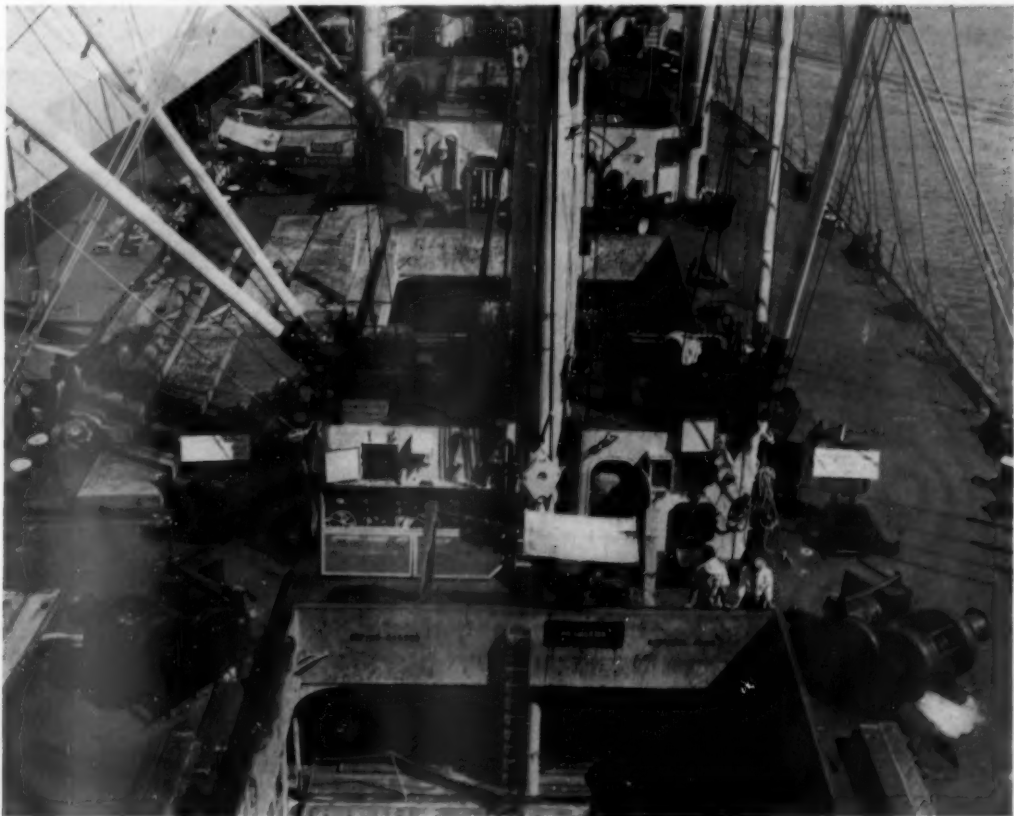
SAFETY RECORD

FREQUENCY



Safety's progress graphically recorded. In 1938 the frequency rate was 127.6. By 1954 it had dropped to 17.7.

Ship shape. Good housekeeping is stressed on all terminal operations. The offshore side is kept clear to provide a safe walkway.





Coopers are cleaning cargo skids to help keep down dust. This precaution has prevented many eye injuries.

helped to improve employee morale, and to reduce lost time accidents by giving prompt treatment. Employees are required to report all injuries immediately, and as a result of convenient facilities and understanding treatment, have willingly cooperated.

The nurse advises employees on nutrition and personal hygiene and treats their non-occupational illnesses. Last year, of the 4104 visits made to the dispensary, only 902 were industrial. In addition, the nurse made 163 house calls to be certain that those employees who were ill were getting proper care.

Another factor which has helped considerably is the requirement that all prospective employees must have a pre-employment medical examination, including a complete back x-ray and evaluation by an orthopedic specialist before being accepted for employment.

Safety Committees. Much time and effort has been spent on the development of a practical safety committee organization that would create and maintain active interest in the safety program. The present organization has proven most effective. There is a "top management" safety committee which meets on a monthly

basis. This group is comprised of the manager who acts as chairman, and all department heads in addition to the safety and training administrators. Their function is

to formulate policy, and discuss the general progress of the safety program.

In addition to this group, there are three safety committees for the operating department, one for the maintenance department and one for the cargo department. These committees meet monthly on company time, and are comprised of the superintendent of each group, who acts as chairman, the safety administrator who acts as consultant and recording secretary. The majority of each operation department committee are longshoremen who are rotated yearly.

The function of all these committees is to discuss accidents which occurred in their respective groups and action taken to correct unsafe conditions or practices which caused them. A training program is always a part of each meeting in which a specific problem or topic is discussed, analyzed and acted upon. During these meetings, each group makes suggestions as to how to eliminate unsafe conditions or practices and ways of promoting the safety pro-

Safety shoes, hats and gloves are worn on the job by longshoremen.



gram. Films and other visual aids are often used.

Monthly reports include details of all disabling injuries and accident analysis as well as outlining current accident rates and new developments in the safety program. Minutes are taken of all committee meetings. These are distributed to all supervisors and members of the safety committees. Safety letters on specific problems, or new developments are distributed to all employees.

Safety Promotion. All employees are kept abreast of the Company's safety records, and items of interest are published in the monthly newspaper issued to all employees. Pertinent safety films are shown to all employees periodically on company time. National Safety Council posters and other promotional aids are continually used and employee Safety Awards are given each year to all employees working for a period of one year without a disabling injury.

A dinner party is also given yearly for all longshore and maintenance department employees working for a period of 5 years or more without a disabling injury. At the last party 495 out of 774 employees were eligible to participate.



Training is part of the safety committee program. Here a group of longshoremen is being trained to give artificial respiration.

Protective Equipment. The company maintains a well stocked "safety store" which offers safety shoes, gloves, socks, glasses, and hard hats. Such items are sold at or below cost to employees who are encouraged to wear them. More than 40 per cent of the longshoremen wear safety shoes, according to the latest tabulations, and more than 700 bought 2191 pairs of leather gloves during

1954. The hard hat program has just been inaugurated and is receiving acceptance.

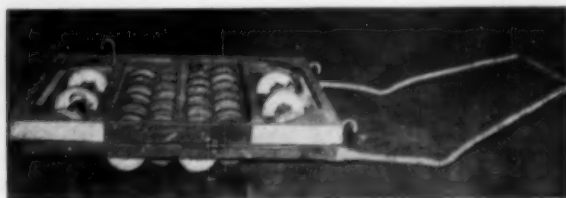
Safety Regulations and Codes. A safety code booklet plainly worded covering all phases of the operation is given to all employees. In addition to the rules in this booklet, an appendix illustrates the safe working loads of rope, slings, tackle, the proper application of rope clips, and definitions of gear and equipment which are commonly used.

Preventive Maintenance Program. All stevedore gear is checked daily before and during its use. When not used it is
—To page 128



In addition to daily inspection, special committees regularly inspect gear.

This special dolly was designed to facilitate movement of cargo to storage areas.





Three-unit section of production line has 29 stations for milling, drilling, reaming and checking operations on V-type engine blocks.

Automatic Units in an Automatic Factory

AUTOMATION today is a basic engineering science.

To design a machine tool requires the close cooperation of a group of engineers with imagination, engineering knowledge and training in the various machine tool elements.

The engineer must be flexible. His thinking must be in terms of equipment requiring the comparatively wide tolerances of conveyors, to the exacting precision of spindles, fixtures and tools that will perform operations on a production basis, yet equal in accuracy the work produced in the tool room.

How automation is influencing machine-tool design with opportunities for lower cost and built-in safety

By F. R. SWANSON

We might classify the progress of automation in three stages:

Stage 1. In the early use of automatic work handling for machine tools, it was customary for the manufacturer to purchase a standard machine and design a work-handling device that would meet his needs. Because no thought had been given to such a device when the machine was de-

signed, it was usually cumbersome and unreliable.

Stage 2. In this stage, single-unit machines were designed with their own handling devices incorporated. Automation on this type of machine was quite satisfactory from the standpoint of operation but it required an operator to position the work on the receiving station and usually a



F. R. SWANSON is Director of Engineering, Sunstrand Machine Tool Company, Rockford, Ill. This article has been condensed from a paper presented at a joint session of the Machine Design and Production Engineering Divisions at the Annual Meeting of the American Society of Mechanical Engineers, New York, November 28-December 3, 1954.

helper to remove the work and push it along a conveyor to the machine next in line.

Stage 3. We are now in the stage where each machine must be designed to operate as a fully automatic unit in an automatic factory. A machine tool may be required to receive the work from the preceding machine, process the work through the necessary operations, free the work of chips, automatically gauge, reject out of size work, stop machine, reset or insert sharpened tools and deliver the work part to the succeeding machine in the line.

Thus the machine tool has advanced from a comparatively simple machine, controlled by an operator, to a highly automatic machine that should perform its operation continuously and reliably with as little attention as an automatic watch.

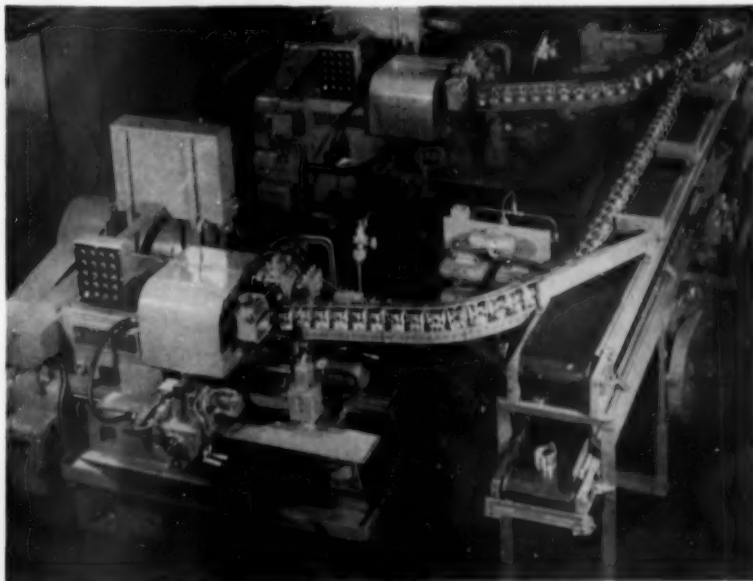
The Basic Machine

Considering the design of a standard single-unit machine to which automation may be applied, thought should be given to the machine base to provide ample room for chip conveyors. Machine ways should be either heat-treated or nonmetallic, protected from chips and automatically lubricated to provide continuous operation with a minimum amount of at-

—To page 96

BASIC REQUIREMENTS OF AUTOMATIC MACHINES

1. Safety for the operator and maintenance men
2. Safe failure of components with respect to the machine and work piece.
3. Long life of electrical components
4. Ease of maintenance
5. Flexibility of control for the operator



Automatic lathes for finish turning and grooving pistons with automatic handling to accept pistons from belt conveyor, load and unload driving chuck, and deposit pistons on a lower level belt conveyor.



A master console control unit for a multi-station process machine.

The Doctor Studies Industry's Noise

By ARAM GLORIG, M.D.

THE PHYSICIAN should play a major role solving the problems of noise in industry and I believe his role is that of conserving human functions. It is his place to be concerned with standards relating to the measurement of these functions, the effect of their loss on the individual, and the amount of noise that can be tolerated before they are damaged.

It is not the physician's place to measure the noise nor to devise methods of noise reduction. These responsibilities belong to the engineer.

I feel that it is the place of the physician to establish methods of arriving at the amount of reduction in functional capacity which any loss of function produces. Whether this loss of function is a legal disability or not is the responsibility of the legislatures and courts.

To the physician, a man who has suffered considerable hearing loss from an industrial cause is a disabled man. However, if one defines disability according to the original intent of the early compensation laws, there is no disability. In many cases a hearing loss does not reduce earning capacity nor have a date of injury.

To the physician, however, the man has suffered a loss of function from his occupational activity, and therefore is disabled. But if the physician is to keep



The pure-tone audiometer provides an accurate inventory of an individual's hearing ability. This booth is well isolated from outside noise sources and acoustical tile has been used for walls and ceiling.

his place as a guardian of human function, he must not define functional loss in the light of the legal decisions made regarding compensation laws.

In my opinion, when illness or injury are or may be a result of occupation, the physician should be solely responsible for the control of and the disposition of the case. It is his responsibility to determine the extent of illness or injury and whether the individual can or cannot continue to work. Further, the physician should supervise anyone performing any functional test which directly involves the individual.

The Human Ear

For purposes of discussion the ear can be divided into three parts

—the external, middle, and inner ear.

The external ear is bounded by the auricle externally and the external layer of the drumhead internally. It is about 25 mm. long and has an S-shaped curve directed inward, upward, and then backward.

The external ear serves as a conducting channel for sound. The auricle assists in localization by its shape and position but more so because of the flexibility of the motions of the head. When testing the function of the ear it is important to remember that the size and shape of the canal and auricle will influence the intensity of the stimulus at the drum. These influences are the result of cavity volume and stand-

DR. ARAM GLORIG is Director of Research, Sub-Committee on Noise in Industry of the Committee on Conservation of Hearing, American Academy of Ophthalmology and Otolaryngology, Los Angeles. This article has been condensed from a paper presented at the session, "What Are the Facts About Industrial Noise?" 42nd National Safety Congress, 1954.

ing waves, particularly when pure tones are used as stimuli.

The middle ear is bounded externally by the inner layer of the drumhead and internally by the mucous membrane covering the bony wall of the inner ear. Within this cavity are contained the three tiny ear bones, the "hammer, anvil, and stirrup" or medically speaking, the malleus, incus, and stapes; and two small muscles, the stapedius, which is attached to the stirrup or stapes, and the tensor tympani which is inserted at the hammer or malleus.

The middle ear also contains three openings—the oval and round windows, and the opening to the eustachian tube. The oval window is fitted with the flattened bony plate of the stapes or stirrup. It is held in place by a fibrous membrane which surrounds the bony plate and acts as a hingelike structure to allow the stapes to move as a trap door. This movement originating at the drumhead transmits vibrations to the inner ear. The round window is a tiny opening located just below and in front of the oval window. It is covered by a thin membrane which resembles the drumhead.

The middle ear has three main functions: (1) Efficient transmission of sound vibrations from air media to fluid media. This is accomplished by a reduction in area from drumhead to oval window of about 30 to 1 and by the shape



Testing hearing with a watch used to be the standard method. Much more accurate tests are now possible with audiometers.

CURRENT CONCLUSIONS ABOUT NOISE

1. The physician's role in medico-legal implication of industrial noise is one of conservation, not compensation.
2. Industry should confine its testing program to air-conduction threshold audiometry. More than this is diagnostic and should be handled by an otologist.
3. The industrial audiometric technician is not and need not be an audiologist. He or she needs to be trained only to administer air conduction threshold audiometry.
4. At present, only two bio-effects of noise can be supported by valid evidence:
 - a. Effect on speech communication.
 - b. Effect on human hearing.
5. Much more research must be done before we can say how much noise will produce how much hearing loss on how many people.

and attachments of the three small bones. (2) Protection for the inner ear. (3) To maintain pressure equalization. The eustachian tube connects the middle ear with the posterior nasal cavity and serves to allow air to get into the middle ear in order to maintain equal pressure on both sides of the drumhead.

The inner ear consists of two main parts, the semicircular canals, which contain the balance mechanism, and the cochlea wherein the hearing mechanism is housed. The cochlea is a long spiral shaped bony canal having two and a half turns. It contains a system of membranous canals and the end organ of the nerve of hearing. One canal travels up the spiral from the oval window and then turns to double back and end at the round window. The second canal is essentially a closed sack situated in cross section relation to the double canal as a wedge of pie is when a pie is cut into thirds.

It is this closed sack which contains the highly specialized end organ of hearing, or "organ of Corti." All of these membranous canals contain fluid making a hydro-dynamic system out of the inner ear. Because this is so and fluid is incompressible, the two windows serve to allow fluid movement when the stirrup vibrates in response to movements of the drumhead as a result of

air vibrations in the external canal.

The ear, its nerve tracts and physiological processes are an extremely complex mechanism. The external and middle ears are relatively well understood, but the inner ear, and especially the organ of Corti, is still pretty much a mystery. Recent advances in electronic instrument design have made it possible to obtain a great deal more information about the function of the inner ear.

Psycho-Acoustics

In general, the young human ear can distinguish frequencies between 20 and 20,000 cycles per second. The frequencies important for speech intelligibility are contained between 300 and 3000 cycles per second.

The speech area is further divided into the vowel and consonant frequencies. The vowel frequencies lie between 300 and 1500, and the consonant frequencies are within 1500 and 3000. Therefore, in testing the function of the ear for speech, two word lists are used—a so-called "spondee" list for the vowels and a "PB or phonetically balanced" list for the consonants.

These two lists test respectively the "speech reception threshold" or determine the amount of volume needed before speech is heard, and "discrimination" or

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Filters the Air Coming and Going



Number and size of dust particles found in filter under test are recorded by Mrs. Lucy Nolos, laboratory assistant at Knolls Atomic Power Laboratory. The laboratory is operated for the Atomic Energy Power Commission by General Electric. Filters used in hot sections remove specks so small it would take 10,000 of them side by side to equal the thickness of a human hair.

→
Readings of air flow velocity to determine best means of filtering dust out of the air are taken by C. G. Detwiler, laboratory assistant. Specks so small they can barely be detected by electron microscope are capable of carrying radioactivity.

PARTICLES so small it would take 10,000 of them placed side by side to equal the thickness of a human hair are constantly removed from air entering and leaving many areas of the Knolls Atomic Power Laboratory.

The laboratory is operated for the Atomic Energy Commission by the General Electric Company at Schenectady.

In laboratory areas where radioactive materials are present, even air brought in from outside is

cleansed of many particles, some of which carry the normal background of radiation found in nature. As a result, it is cleaner than air in the surrounding countryside.

According to Louis J. Cherubin, supervisor of health physics at the Laboratory, many precautions are taken to assure that no worker at KAPL is exposed to harmful amounts of radiation that might ride on airborne particles.

Residents of this area are likewise protected by filters that cleanse air exhausted from the laboratory situated on the Mohawk river.

The reason for special efforts to remove extremely small particles, according to Joseph J. Fitzgerald, a health supervisor of Radiological Chemistry and Physics at KAPL, is that the smaller the particles, the easier they penetrate to the lung's lower recesses where cleansing action of the organ is less efficient.

Large particles that lodge in the upper part of a person's lungs are swept out quickly by cilia, special hair-like cleansing me-



Dearborn Off for the Orient



Ned H. Dearborn, president, National Safety Council, and WO/JG Elmer E. Barton, Directorate of Ground Safety, FFAF, Tokyo, board plane at Chicago's Midway Airport on first leg of a trip to Japan.

OVERSEAS MILITARY BASES of the United States, as well as foreign governments, will receive official help with their safety programs from Ned H. Dearborn, president of the National Safety Council, who will spend the next four weeks in the Far East as a guest of Far East Air Forces.

Mr. Dearborn left Travis Air

Force Base in California April 18 on a Military Air Transport Service flight for Tokyo, stopping at Honolulu and at Midway or Wake Island en route. He is being escorted by WO/JG Elmer E. Barton, Chief, Training and Survey Division, Directorate of Ground Safety, at FFAF headquarters in Tokyo.

chanisms, he explained. All particles, even those which can only be seen by the electron microscope, are potential carriers of radioactivity in "hot" areas.

In the history of KAPL, there never has been an injury due to radiation, thanks to the staff of the health physics unit, which is engaged in a continuing effort to improve the efficiency of present air-cleansing methods.

Miniature intake and exhaust systems are set up and various

paper filters tested to determine at what air speeds most particles are removed. To study the way that dust is trapped by filtering materials, special replicas of filter papers are made from silicon dioxide molds that hold dust particles in place after filters have caught them.

Once the dust particles are fixed in place, the paper is dissolved and the dust particles counted with the aid of an electron microscope.

The National Safety Council head will meet with the commanders of Far East Air Forces, Far East Command-United Nations Command, and Army Forces Far East in Tokyo; Fifth Air Force, the 315th Air Division and Far East Air Logistic Force; the 313th Air Division and the 51st Fighter-Interceptor Wing; the Thirteenth Air Force in Manila; the Seventh Air Force in Guam, and the Pacific Air Force and the U.S. Army of the Pacific in Hawaii.

If time limits and international tensions prevent inclusion of Korea and Formosa in the itinerary, generals from those areas will meet with Mr. Dearborn in Tokyo, Okinawa or Manila.

In Japan, he also will be a guest of Saburo Noguchi, Chief, Safety Section, Japanese Ministry of Labor; Ichiro Ito, president, All Japan Industrial Safety Association, and T. Gamo, president, Japan Safety Institute. Functions arranged by Japanese officials include luncheons and receptions and tours of leading industries. Japan started its official accident prevention program in 1947, and has leaned heavily on the National Safety Council for guidance. Mr. Noguchi visited Mr. Dearborn at Council headquarters in Chicago four years ago.

In addition to the many inspection tours, official visits and addresses to both U. S. military and Japanese national groups, Mr. Dearborn will personally present the National Safety Council Award of Honor to those military units in Japan, Okinawa, Philippines and Hawaii that have won the citations through improvement in their safety performance in 1954. In past years, commanders of units winning the awards in the Far East have invited Mr. Dearborn to visit the establishments and make the presentations, but his heavy schedule has always interfered.

Mr. Barton, formerly with the Air Materiel Command and the Air Research and Development Command, has been stationed with FFAF in Tokyo for seven months. As Mr. Dearborn's aide, he will be able to expedite travel and arrange final details of the many appointments on the crowded schedule.

Too Many Solvents?

Their number is legion and the list is growing. They are solving many processing problems but are creating new ones for the doctor and the industrial hygienist

By R. M. WATROUS, M.D.

WHILE preparing this talk, I had nine books spread out before me. From these, I gleaned one golden nugget of truth: There are just too many solvents!

Mellan's book¹, published in 1946, lists some 2500. Scheffan and Jacobs' book², published last year, lists 2600. If we deal chiefly with liquid organic solvents as used in the paint and varnish industry, in the processing of fats and oils, and in the degreasing of metals, this still leaves an enormous number of items.

Concerning fat solvents in general, their outstanding common characteristic is that they dissolve fats, and also will dissolve in fats. From the medical viewpoint, this explains most of their hazards. By dissolving fat from the skin they produce dryness, thickening and cracking, which lead on to dermatitis.

In addition, some of the more chemically reactive ones, such as ketones and chlorinated compounds, either irritate the skin chemically, or combine with protein substances in the skin to create allergens. In the latter case, sensitization may occur, and only slight exposure may be enough to re-activate the dermatitis.

Furthermore, it is a general rule that most substances which are soluble in fat will penetrate

the human skin on contact, and thus gain access to the blood stream. Most fat solvents will do this, so that in preventing absorption we have to consider not only inhalation of the vapor, but skin absorption as well.

Because these solvents readily dissolve in fat, they tend to accumulate in portions of the body which contain the most fat. Prominent among such tissues are the brain, the spinal cord and the peripheral nerves. Nervous tissue contains a large amount of phospholipid, which is a fatty substance. This is believed by many to explain why practically every good fat solvent, if absorbed in sufficient amounts, will cause anesthesia, or unconsciousness, and ultimately paralysis and death. The same reasoning may explain why the other organs more readily damaged by solvents are the liver, the kidneys and bone marrow.

The Body's Defenses

A second generalization may be made concerning fat solvents, which applies to many other chemicals as well. Those chemicals which normally exist in the human body as the result of food intake or metabolic changes which the food undergoes are far less likely to produce poisoning when absorbed in pure form from the working environment.

For example, the body has excellent mechanisms for utilizing or detoxifying such materials as

lactic acid, alcohol, acetone, glycerol, acetic acid, and many other organic substances, provided they are supplied in sufficiently diluted form. On the other hand, the body is practically defenseless against such foreign substances as aniline or nitrobenzene.

Sweet-Smelling Poisons

A third generalization concerning solvents is the one that applies to many other poisonous materials; it lies at the very core of the problem of practical control: The pleasantness or unpleasantness of the smell of the solvent is absolutely no guide to the danger it may carry.

In fact, far too many of our common solvents smell rather pleasant and fruity; far too few are irritating enough or foul-smelling enough to give adequate warning. This is the daily problem of the safety engineer who must convince workers of the need to protect themselves. No need to argue with the worker who gets a whiff of sulfur dioxide! He'll be out of the room before you can speak. But when it's benzol vapor, how can anything with such an agreeable smell hurt you?

Coming now to particular solvents, we face the obvious fact, that no short talk, not even a short college course, could cover them all adequately. What, then, can you as individuals, or as members of an industrial safety team, do, to be informed?

Well, there is no substitute for

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study of the technical literature, textbooks on the subject, articles in the industrial medical periodicals, and handling instructions of the suppliers.

But each of these has serious shortcomings. The early technical literature on a new solvent usually consists of toxicity tests on animals. The animals are exposed to varying concentrations of the solvent vapor for a few minutes, hours or days, and are observed for signs of damage. From this it is fairly easy to predict what concentration would render workers unconscious in a few minutes, or have them staggering in an hour or two. You can easily tell from the behavior of the animals whether the vapor is intensely irritating, choking or suffocating.

Limits of Animal Study

The trouble is that animal study can't go into the range of concentrations where perhaps a month's exposure, eight hours each day, would have to be given to pick up serious chronic poisoning. A good example of this weakness of the animal test is the case of dioxan. A rather careful animal study³ of this solvent was published in 1930.

Guinea pigs exposed to 1,000 parts per million displayed no sign of discomfort or narcotic effect during eight hours. No sign of damage to the internal organs could be found either immediately after the exposure or several days later, except a slight congestion in the lungs. The authors concluded that dioxan was a very mild lung irritant, and that it had good warning properties because at a concentration of 1,600 parts per million human observers noticed slight burning of the eyes, accompanied by tears.

Just three years after this record, however, five workers in an English textile mill died of dioxan poisoning within a two-week period, and they did not die of lung irritation, but of massive damage to the kidneys and liver.⁴ The maximum allowable concentration now recommended by the Association of Governmental Industrial Hygienists is 100 parts per million.

After these fatalities had occurred, more prolonged studies on

animals showed the long-term chronic effects on the kidneys and liver which the first study had missed. This is not an isolated instance; the same pitfall existed in the studies made of a number of glycol derivatives, and as a result mass poisoning occurred when ethylene glycol was used in the famous sulfanilamide elixir case some 17 years ago.

Therefore, I would say to you: By all means, follow the technical literature, but take it with a grain of salt. Study the design of the experiments to see whether long-term chronic effects have been looked for, because chronic effects are the ones which will appear in industrial use.

Textbooks on solvents suffer

from the same defects as the technical literature, with a few extra hazards thrown in. If the book is concerned with the practical aspect of solvents, that is, their use in paints, varnishes, extractions and so forth, it will usually be written by a chemist or an engineer. The section on toxic properties will generally consist of tables or paragraphs quoted from medical texts, which are themselves often quoted from ancient sources.

Statements are quoted uncritically, and a tremendous amount of old error is thus perpetuated, even in the newest texts. On the other hand, if the book is written primarily by a medical man, he

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Who Does Your Thinking?

THOSE POOR, oppressed, illiterate regimented Russians! The state doesn't allow them to do even a little bit of thinking for themselves—nohow.

By the way, who does your thinking for you?

Does someone else have to keep you out of trouble? Protect you from yourself?

Does your boss have to worry about whether you are going home tonight? Is he going to have to help explain that stub, that limp, or that phony eye?

Have you got enough of that grey stuff to see for yourself that you have everything to lose and nothing to gain from the chances you take?

Sure, you're in a hurry sometimes—and you don't always stop to think of consequences—or you aren't sure what will happen, but what the hell, you will take the chance anyway.

But, guys sure slow down when they are hurt—and have lots of time to think while recuperating, if they do—and sure look foolish when they goof, for not thinking.

Are you too lazy to think about protecting yourself or is it that you just don't give a damn?

Do the cops have to be sitting at the corner to make you think before jumping a stop light—or rolling through a stop sign?

Do you have to have a doctor wise you up at the hospital, after you have hit a kid running across the street for a ball—or after your kid has gotten into a medicine cabinet—or been tripped up by some stupid booby trap type thing you allowed him to get involved with?

Do you have to have rules constantly before you—with stiff disciplinary action or penalties supporting them?

Do you have to be constantly reminded, or refreshed, or given the needle to prevent your doing away with your personal resources?

We speak of those poor Russians. Well, any of you clowns who can't think about doing your job safely are putting yourself in the same category and are asking for the same treatment!

If a guy can't think for himself these days, he'd better get his cotton pickin' hands back to cotton pickin'!

ROBERT D. GIDEL, Senior Consulting Engineer,
Industrial Department, National Safety Council

Mark Your Calendar

The Time: October 17-21, 1955

The Place: Chicago

The Event: 43rd National Safety Congress and Exposition

A PROGRAM crowded with good ideas for practical use in safety—an exhibit floor made larger by the addition of an entire ballroom for the display of safety equipment and educational materials—a roster of speakers who have done stirring new things themselves in safety work in their jobs and communities—all these are slated for the 43rd National Safety Congress, to be held in Chicago October 17-21.

Seventeen Chicago hotels have

DATE AND HOTEL ASSIGNMENTS

	(Hotel)	Oct. 17 Monday AM PM	Oct. 18 Tuesday AM PM	Oct. 19 Wednesday AM PM	Oct. 20 Thursday AM PM	Oct. 21 Friday AM
Sectional Sessions						
Aeronautical Ind.	Hilton	X		X		
Air Transport	Morrison		X			
Auto. & Mach. Shop	Congress			X	X-jt.	
Cement & Quarry	Hilton		X	X		
Chemical	La Salle	X	X	X		
Coal Mining	Hilton	X	LX	X	X-8	
Commercial Vehicle	La Salle		X	X	X-jt. L	
Construction	Hilton	X	X			
Electrical Equipment	Hilton			X	X	
Fertilizer	La Salle	X	LX			
Food	Morrison		X	LX	X	
Glass & Ceramics	Congress	X	X			
Marine	Morrison	X	X	X	B LX	
Meat Pkg.—Tng. & L.	Congress	X	LX			
Metals	Hilton	X	X2	L	X	
Mining	Congress	X	LX	X	X	
Occ. Health Nursing	Hilton		X	X	L	
Petroleum	Hilton	X	X2	X3	X	
Power Press	Hilton- Congress		X		X-jt.	
Printing & Publishing	Hilton	X		X		
Public Employee	Hilton	X	X	X		
Public Utilities	Hilton		X		X3	
Pulp & Paper	Hilton	X	X	X	LX4	
Railroad	Morrison		X	X	X	
Rubber	La Salle	X	X	LX		
Textile	Hilton	X	X			
Traffic	Congress	X	X	X	X	
Transit	La Salle		X	X	X-jt. L	
Wood Products	Hilton	X	X	X-jt.	X	
Divisional Sessions						
Farm	Morrison		X	X	X	X
Home	Hilton			X	X	
School & College	Morrison	X	X	X	X	X
Women's Activities	Hilton- Black.	X	X			
ASSE—Subject Sessions						
ASSE Ann. Mtg.	Hilton	X				
Subject Sessions	Hilton & Congress			X	X	X
General Sessions						
Annual Council Mtg.	Hilton	X				
Banquet	Hilton			X Eve.		
Early Morn. Sess.	Hilton		X	X	X	X

X One session
X3 Three group sessions
L Luncheon

X-jt. Joint session, two or more Sections
B Breakfast meeting

been reserved for the more than 12,000 convention visitors expected to attend the Congress, largest safety convention in the world. More than 300 meetings have been arranged, covering safety and safe methods in every field of endeavor, more than 700 of the convention delegates themselves will take part in the program, designed to stimulate increased safety consciousness both at home and on the job.

As in former years, the Congress as a whole will be made up of meetings of the six program departments of the National Safety Council—industrial, traffic and transportation, farm, school and college, home and women's activities.

An outstanding speaker for the four early morning sessions has been brought back from the 1952 Congress. He is Arthur Secord, adult education supervisor for Brooklyn College, New York, who gave such an excellent series on "Safety and Personality" in 1952 that he has been brought back by popular request.

Fourteen morning subject sessions sponsored by the American Society of Safety Engineers will delve into new ways of solving some age-old safety questions, bring out up-to-date information on new methods and processes.

Some other projected programs:

- Organization of a new section of the Industrial Conference, covering hotels and restaurants, retail stores and warehouses, service groups such as laundry and dry cleaning firms, during the Congress.
- Joint session on Child Safety, sponsored by Farm, Home, and Women's Divisions.
- Award presentations to organizations and individuals who have done outstanding jobs in safety.

More rooms than ever before have been reserved, but delegates are advised to get hotel reservations in early, to be sure of getting good space. Those who have not already received hotel registration blanks should write at once to The Housing Bureau, National Safety Council, 425 North Michigan Avenue, Chicago.

Threshold Limits Are Merely Guides

"No method ever has been, or ever can be, devised that will permit an exact prediction of human hazard. Threshold limits, no matter how accurate and well-documented, serve only as a guide and a yardstick," Miriam Sachs, M.D., of the New Jersey Department of Health, told the American Conference of Governmental Industrial Hygienists and the American Industrial Hygiene Association at the Industrial Health Conference recently held in Buffalo.

In substantiating her statement, Dr. Sachs quoted from a preface to a list of threshold limits compiled by the American Conference of Governmental Industrial Hygienists in 1948 which stated that "people vary greatly in their response to drugs and toxic substances. Therefore, it is a figment of the imagination to think that we can set down a precise limit below which there is complete safety and immediately above which there may be a high percentage of cases of poisoning among those exposed. The values have been set at a level below which it is fair to expect reasonable protection and above which it is reasonable to expect that we can have occasional cases of poisoning."

Official industrial hygiene agencies must have a screening device to apply to literally thousands of industrial processes which are encountered daily. A screening device may very well be a single parameter but it should be used only for the purpose of suggesting more intensive and detailed study where the parameter is significantly exceeded.

In spite of such an elastic yardstick now in use, Dr. Sachs believes that it is nevertheless extremely useful, submitting as an example that "in radiological health and radiological safety the maximum permissible exposure value has made possible much of the rapid adoption of various radiological techniques, uses of radioisotopes, and forays into the field of nuclear energy."

Furthermore, Dr. Sachs concluded, one of the major values



of such lists of threshold limits is the fact that they are revised annually, and new substances are added as they come forth.

Probably nothing hurts a woman's vanity more than having to put on her glasses to apply her lipstick.

FIRST AID

for field and small plant

By R. P. WHITNEY

For hazardous work at a distance from medical service and in emergencies nearer home, life may depend on the first-aiders' training and equipment

OF THE approximately 4,000,000 firms in the United States—manufacturing, mercantile and service—only about 35,000 employ 100 or more persons. Of these larger firms, many have operations where groups of employees are deployed in fleet or field operations away from centralized medical attention.

This involves many problems. One is how best to render first aid to these detached groups of workers. Adequate first aid facilities and well-organized emergency procedures are of great importance to the employer and to the insurance companies.

Many of the larger industries have regular dispensaries with full-time nurses and other medical personnel. In such cases first aid classes can be held to teach employees the latest first aid techniques. With detached groups, however, additional problems arise in having the proper first aid equipment available there when the emergency happens. Industries in this classification include construction companies, public utilities, oil operations, logging, mines and governmental operations.

To set up a workable first aid system for such operations requires equipment that is mobile, easy to use, practical to maintain and sturdy enough to withstand existing conditions. While bulk-type first aid is satisfactory for centralized use in most cases, it does not meet the requirements usually necessary for efficient

field use or for use by the average layman. Unit first aid, however, is practical for such field and small plant operations. It is especially useful on a wide scale for a small number of workers in detached locations or small plants and organizations where medical attention is not immediately available.

The Division of Simplified Practices, National Bureau of Standards, working with industry, has

standardized on the 10—16—24 and 36 unit type first aid kits. These kits are of heavy sheet steel in order to withstand the wear and tear of rugged handling. The kits have mounting brackets and also carrying handles, thus making it possible to carry them to the scene of the accident rather than transporting the victim to the first aid station. They are dust and moisture proof by the use of positive seal rubber gas-

Supplementing a modern dispensary staffed by trained personnel during all working hours are these first aid kits located at strategic spots in the plant of Woodward Governor Company. They are strictly for emergency use by the emergency squads. Here, the safety director and an attendant are checking supplies.



R. P. WHITNEY is Assistant Sales Manager, Medical Supply Company, Rockford, Ill.



What a spot to be in! The rattler is just as scared as the man but he's better prepared to fight it out. Let's hope there's a snake-bite kit handy.

kets, keeping the contents clean and undamaged until needed.

Further standardization in the unit system is the uniform unit size package containing individually packaged items for one-time application. There are three sizes of unit packages—single, double and triple. The 36-unit kit contains 36 single units or multiples of any of the three combined sizes. Each operation, plant or field trip may have different size kits and contents depending upon the number in the group and the types and frequency of injuries. A 24-unit kit is considered adequate for 50 people. The kit should be kept in an accessible location.

The unit package has one or more individual treatments for single application. Deterioration is practically nil and sanitary protection is assured. Breakage and spillage are kept to a minimum. The worker is thereby assured of material for use in any emergency at all times.

The contents of the unit type kit may be varied to meet the needs of the particular operation where it is to be used. The selection of the contents of the unit kit should be made by a com-

pany physician, safety director or other competent person who is familiar with the types of injuries most often encountered and the types of treatments required or preferred. Changes may be easily made in the kit assortments as required, due to the flexibility of the unit system.

Basically, unit first aid items may be divided into three separate groups. They are (1) general, (2) general preference and (3) specialty. Local conditions, preferences and procedures will largely determine which items are stocked. However, a well-balanced first aid kit will almost always contain unit items from the first two groups, and quite often items of a specialty nature.

Standard Supplies

The first, or general group, includes such unit items as adhesive bandages, gauze bandages, bandage compresses, ammonia inhalants, gauze compresses, triangular bandages, adhesive tape, tourniquets, forceps, scissors and wire splints. These are standard items supplied by all unit first aid manufacturers. There is usually no element of choice involved

in selection of these items, beyond a preference for one particular item.

The second, or general preference group, includes such items as antiseptics, burn first aid treatments, and eye treatments. The list of the available commercial brands for any of the above items is a long one, and it is with this general preference group that medical personnel exercise the greatest selection. Unit first aid manufacturers package a great variety of products, in order that each user can have ample variety from which to choose. However, regardless of the particular medication selected, packaging is almost always standard throughout.

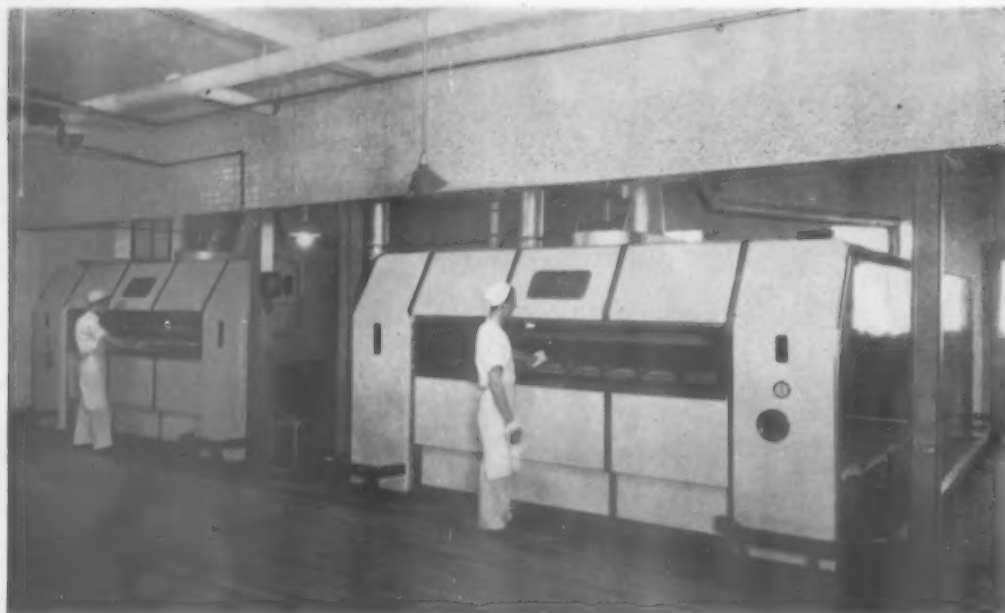
Specialty Items

In various sections of the country, there are local conditions or hazards which create a need for the third, or specialty group of items. In such instances, these specialty items are used to complement the standard first aid system. They include treatments for plant poisoning, insect repellents, snake bite first aid kits, and burn spray first aid kits.

When workers enter rural or sparsely settled areas in some sections of the country it is almost a foregone conclusion that they will encounter poisonous snakes in their travels. Of the 17 varieties of poisonous snakes in the United States, at least one is found in every part of the country. Immediate and proper first aid treatment is a must when a person is bitten by a poisonous snake.

Suction treatment must be applied at once when a poisonous snake strikes and must be maintained up to 15 hours for about 15 minutes of each hour, or until a physician arrives or the victim is admitted to a hospital. On many occasions when a person is bitten, he is alone and must attend to the bite himself. Care should be taken to select a snake bite first aid kit which is easily adaptable to use by one person. Also, the snake bite kit should be of the type which will fit all standard unit type first aid kits, as a supplementary unit.

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Profit Leaks in the Baking Industry

By FRANK J. WIRKEN

Heavy accident losses are a drain on even a large company; for a small company they threaten bankruptcy

ACCIDENT prevention has developed quite rapidly in the past twenty years in many industries, mostly heavy and so-called hazardous industries, yet there is still conflicting thought about it in the baking industry. It may be that the transition from hand work to mechanization has not fully dawned on the industry, or it may be that the many small organizations in the industry have hampered cooperative action or analysis of the problem.

Many of the larger companies have established accident prevention departments and have capitalized on the benefit of well planned programs. Smaller plants,

however, have not felt the import of such activities or do not understand them. In the interim, accidents that can easily be prevented keep right on happening, and because of accidents, operating costs can keep mounting.

There are several ways in which accidents and their attendant costs can be evaluated. In the final analysis they can be categorized into two groups—social and economic. It was because of industrial accidents and their social implications that Workmen's Compensation Acts were legislated, and by the same measures economic protection was afforded industries. Perhaps one of the greatest evils that such protection affords is the paradox that because it prevails, accidents must or will happen, and therefore insurance protection is available.

Yet accidents do not have to happen, and rarely does insurance cover all economic losses. Nor does it cover the social effects of accidents. As an industry, we can accomplish what other industries have done in accident prevention, but we will not do so until we recognize it as a responsibility of management and rank it along with other equally important phases of baking.

Since the economic effects may be closer to the businessman we may well consider them first. A review of your Workmen's Compensation Insurance costs for the past, will reveal that basic premium rates have steadily increased. While it is true that they would have increased with a normal accident experience because of increased benefits, medical, and hospitalization costs, nevertheless

FRANK J. WIRKEN is Director of Personnel and Safety, Interstate Bakeries Corp., Kansas City, Mo., and Chairman, Bakeries Division, Food Section, National Safety Council.

some industries have actually been able to reduce their basic premium rates. Where this has happened, it is solely attributable to effective accident prevention programs.

Even in the baking industry some of the larger companies with accident prevention departments have successfully reduced their compensation costs. This realization is sometimes overlooked by management. Perhaps they are not aware of the fact that they can establish their own compensation rate, based on experience over a period of years. Even smaller organizations can gain cost advantages in their insurance premiums by combining their various casualty coverages into one package and along with it introduce effective loss control measures.

Common Misconceptions

That the baking industry has not taken advantage of these is in part a reflection on their thinking. If accidents can be prevented, and there is abundant proof that they can, then every organization has the opportunity to save money. Let's begin with some fundamental facts and philosophies.

Take the word "accident" itself. According to Webster, "it is an event that takes place without one's foresight or expectation." Truly that is correct but that does not prohibit us from using some foresight or anticipating what might happen. This has led to a prevalent philosophy that there is nothing we can do about it. We have not only accepted this definition literally but our very actions, beliefs, and concepts have led us into a one way street.

These misconceptions contribute to the everyday accidents in our homes, plants, and on the streets and highways. We must set our thinking straight and learn how accidents can be prevented, so that they will be prevented, and that we will then realize that the task is not impossible.

The antonym of the word accident is "Safety," which is defined as freedom from danger or hazard, keeping oneself or others free from danger, and the quality of

TABLE I—INJURY FREQUENCY RATES

Industrial Group	National Safety Council		U. S. Department of Labor		
	1950-52 Average	1952	First Nine Months 1953	1952	Ave.
Confectionery Mfg.	6.29	5.05	14.3	13.4	13.5
Meat Products	10.74	10.12	20.8	21.3	21.2
Bakeries	11.17	10.91	19.1	15.7	16.0
Grain Mill Products	12.84	13.44	17.6	17.8	19.1
Dairy Products	17.27	17.12	17.6	17.1	17.0

giving confidence, justifying trust, dependableness. Most of us practice some safety, but unfortunately only to a degree. We have unfounded confidence in men, machines, and materials that are not infallible, not unbreakable and are affected by a thousand and one conditions and circumstances.

We teach and train our children to avoid danger and mishaps, presumably because they are children. We neglect adults, presumably because they are adults. We protect ourselves to the best of our ability and knowledge, but we either assume we know how to protect ourselves, or if we should be involved in an accident, it is an act of God, the law of averages, or the price of progress.

Training Needed

All of us, particularly new people who have never worked in a bakery, or old people who never worked with a new machine or in a new environment, need training. Neglecting to train them is shunning our responsibility as management. We have hardened ourselves to reading accident reports. We must get the feel of accidents, observe first hand the damage they cause, the social repercussions involved, and most of all, add up . . . the economic costs, not merely the compensation expense. We have to get away from Webster's definition of an accident and substitute "accidents are caused; they just don't happen." And while we're consulting the dictionary let's look at the word "responsibility." It means, accountability, answerability, reliability, and trustworthiness. Have we discharged all of these obligations?

Between these terms lies a solution, if we will go beyond assumptions and practice real leadership. The ingredients of leadership are many, but the leader who enriches the lives of those he works with and who works for their improvement and his own is the man who is out in front, and by example accomplishes ends that benefit all.

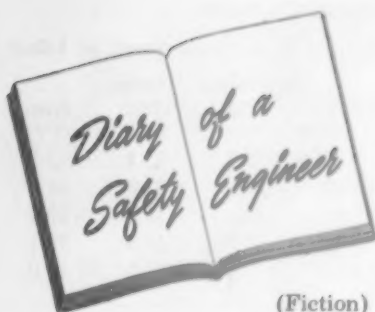
Assuming that we are not evaluating our own accident experience and costs, what is the next step? There are several guides for comparing our experience, both in frequency and severity of accidents. The National Safety Council and the U. S. Department of Labor have been collecting these statistics for years and, for the industry at least they furnish a yardstick.

The statistics of the National Safety Council are those reported by their members, and represent a very small part of the baking industry. They are mostly from larger companies, although they include some small establishments. The majority of them have safety departments.

The frequency of accidents of this group as compared to the statistics of the U. S. Department of Labor, which represents a much larger group, is definitely much lower. The frequency of accidents in the baking industry as compared to other food industries is shown in Table I published by these two agencies.

The term frequency has an accepted standard definition which represents the number of disabling injuries per million man hours. A disabling injury is defined as one in which the injured person is unable to report for his regular job the following day in

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(Fiction)

*There isn't a safety man
who hasn't been up against
this problem. How do you
handle it?*

Stock Situation

By BILL ANDREWS

May 2, 1955

THE SPRINKLERS caught the fire before it did much damage. A couple of hundred dollars would pay for the damaged cartons and get the rust off the contents. Smoke and lost time accounted for a little more loss. And, if I was writing the bill, I'd charge \$1,000 for wear and tear on a safety director's nerves when he gets a fire call at 11:00 p.m. on Saturday night when he's just beginning to enjoy the first week-end of the season at the lake.

The investigation was anything but inspiring or challenging. A green kid on the warehouse night shift sneaked a cigarette. The straw boss came by, and the kid ditched the cigarette in a hurry. It happened to hit where some discarded packing material had been shoved in a pile beside a coffee can half full of gasoline somebody must have cached away to clean grease off their hands.

A few minutes later, the sprinklers let go, and that was that. A flat, dull, routine event, repeated so many times every year in industry that all remedial procedures seem cut and dried.

Or do they?

Sure, there is a cut and dried approach. Fire the smoker. Rake the straw boss over the coals for not enforcing discipline.

Find out who was responsible for not cleaning up the pile of packing material promptly.

Try to do a detective job and find out who cached the gasoline, and who let him get it in the first place.

Jump on whichever of my assistants last inspected that part of the warehouse for letting the situation get sloppy.

Order more fire prevention posters and larger "No smoking" signs.

Speak sternly at a safety meeting of the perils of fire.

Write a smug memorandum to the front office proving how much money the sprinklers saved us.

I can do all those things by heart—I've done them before often enough.

But the nagging thought comes to mind—if this is the right approach, why doesn't it work? Why do we have to do it over and over and over again?

I asked Harry Dexter, my chief assistant, that question, hoping for a fresh approach to the problem. I know he had never handled just this type of situation before. But he just looked at me blankly—a sort of "Is the old man losing his grip" look. I realized then that the situation is so completely routine that everybody knows at once how to deal with

it. It's in the book, as the saying goes, pat and clear and simple.

Yes, it's simple. Just as simple as the argument for wearing goggles or stopping at a through street stop sign. The only trouble with the answer is that we still get such fires, lose eyes, have intersection collisions.

It's easy to say, "Don't smoke in unauthorized areas." But how do you deal with the unthinking teen-ager who forgets, or rejects mature authority, or figures that others get away with it, so why can't he?

How do you deal with the well-meaning supervisor who, in the rush of a busy night, with lots of stuff to move, decided to keep pushing the stuff, leaving the cleanup of a mess to a quiet moment near shift-end.

Or with an old hand (it must have been an experienced one) who had, perhaps, been using his little can of gasoline on the sly for years without any mishap?

I've talked to the kid who threw the cigarette. Below average mentality—but we've less intelligent hands pushing trucks all over the plant. He was too scared to be rebellious when I talked to him—just said that he was dying for a smoke, so he smoked.

The foreman's alibi for not do-

ing a cleanup was more articulate but no more meaningful—"I was busy, see, and I woulda got at it right away if the fire hadn't come right then."

As for the men who handle the greasy parts, none of them, they assure me would ever dream of using gasoline in an open container. They couldn't imagine how the can got there.

I admit that this, the simplest and oldest safety problem of them all, is too tough for me. But I am so completely soured on the old way of dealing with it that, in desperation, I'm going to try something different. It may not be any good, and if it doesn't work I can only hope that the sprinklers keep losses in line.

I'm recommending to personnel the transfer of the smoker to maintenance, and I'm putting it to him this way, "Mike, it wasn't your cigarette that started that fire. It was the mess it fell in. We're putting you on a job to keep fires like that from starting by keeping the mess picked up. If, for 60 days, you keep your area free of fire hazards, I'll see that you get back on your truck at your old rate of pay. This is going to cost you a pay cut for two months, but you can salvage your job if you want it."

Second, I'm asking personnel to make a review of plant rules on smoking and see if the areas in which smoking is permissible are available to all personnel. If they aren't, and I don't think they are, I'm going to ask personnel to consider a man's smoking habits before placement, keeping the heavy smokers from areas where temptation will be at a maximum.

Third, for my next foremen's safety meeting I'm going to stage as nearly as I can a duplicate of that fire, only this time it will be in a pine shed in the yard. And I'll have a spark coil under some gasoline-soaked rags just in case the cigarette I flip into it doesn't set it off. It ought to make a good show, and, maybe, convince some of them of the relation of good housekeeping to fire prevention.

As I say, all this may be waste motion. Maybe we can't do anything but fire and bawl out—but I'm going to give this a try.

Printing Presses Now Covered by Safety Code

PROTECTION of personnel and increased efficiency in operation of printing presses is the purpose of the first national safety code especially designed for graphic arts equipment.

The new American Standard Safety Code for Controls and Signaling Devices for Graphic Arts Presses has just been released.

The Association recommends voluntary adoption of the code by printing companies at their earliest convenience—whenever they purchase new equipment or make any major change or alteration in existing equipment.

The code is for both publication presses such as are used for newspapers, magazines, rotogravure, large catalog work, etc.; and for commercial presses, either sheet-fed or web-fed.

Push button stations for the presses are required by the code to be arranged in a single row and vertical, except in a commercial press where sometimes this arrangement is impractical for convenient mounting, then the arrangement may be horizontal, says the code.

Identifying Controls

Control stations for publication presses will be provided with push buttons with the following designations and colors:

Green: A maintained-contact button marked *safe*. When depressed, it prevents the press from being started, or when the press is moving, prevents further increase in speed.

Black: A maintained-contact push button marked *ready*. Depressed, it establishes permissive circuits enabling the press to be started.

Yellow: A momentary-contact button marked *faster*. Starts the press and increases the speed as long as the button is held depressed.

Black: A momentary-contact button marked *slower*. Decreases the speed, eventually arriving at threading speed.

Light Grey or Aluminum: A momentary-contact button marked *inch*. Allows movement at threading speed.

Red: A momentary-contact button marked *stop*. The stop button only shall be a long push button.

Control stations for commercial presses have a long stop button and may have buttons for *inch*, *run* (black), *slow-fast* (black), and *reverse* (yellow).

Certain designations formerly used on push buttons which looked similar to other words were eliminated by the committee who developed the standard. In each case, the push button was marked with the term which best described its function.

The standard outlines requirements for safelights and warning signals. It specifies that control circuit arrangements be made to insure signals being operated prior to any movement of the press.

An appendix is included with the standard to explain new terms used. A diagram is included to show suggested arrangement of control circuits discussed in the code.

A compilation of accident reports several years ago indicated the need for a national uniform code for controls and signaling devices for presses. The Printing and Publishing Section of the National Safety Council in 1951 asked the American Standards Association to establish a committee to work on a solution to the problem.

Administrative leadership for the project was furnished by the Research and Engineering Council of the Graphic Arts Industry and the National Safety Council.

The committee that developed B65.1 represents a wide cross section of interest in the project. National organizations who supplied personnel to serve on the committee included: Amalgamated Lithographers of America, American Newspaper Publishers Association, American Photo-Engraving

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NATIONAL SAFETY COUNCIL

AUDITOR'S REPORT — 1954

To the Board of Directors, National Safety Council:

We have examined the balance sheet of NATIONAL SAFETY COUNCIL (a Federal corporation organized not for profit) as of December 31, 1954, and the related statements of income and expenses, changes in net assets employed for the benefit of members and source and application of funds for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We had made a similar examination for the year ended December 31, 1953.

In our opinion, the accompanying balance sheet and statements of income and expenses, changes in net assets employed for the benefit of members and source and application of funds present fairly the financial position of National Safety Council as of December 31, 1954, and the excess of income over expenses and source and application of funds for the year then ended, and were prepared in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ARTHUR ANDERSEN & Co.

April 7, 1955.

BALANCE SHEETS—DECEMBER 31, 1954 AND 1953

ASSETS		1954	1953	LIABILITIES		1954	1953
CURRENT ASSETS:				CURRENT LIABILITIES:			
Cash (including in 1954, \$71,748 held by Trustees)		\$ 423,244	\$ 485,438	Accounts payable		\$ 106,487	\$ 95,719
U. S. Government securities—				Employees' income taxes withheld, etc.		37,271	32,927
Savings bonds, at redemption value		\$ 645,668	\$ 475,811	Deferred income—unfulfilled membership and service contracts		944,000	848,000
Treasury bonds, at cost		7,800	7,806	Total current liabilities		\$1,087,758	\$ 976,646
		\$ 653,468	\$ 483,617	CONTRIBUTIONS AND APPROPRIATIONS FOR SPECIAL PROGRAMS		112,526	125,275
Accounts receivable, less allowance for doubtful accounts of \$12,651 in 1954 and \$12,574 in 1953		\$ 465,695	\$ 427,925	RESERVE FOR CONTINGENCIES		300,000	300,000
Inventories, at approximate cost which is not in excess of market—				NET ASSETS EMPLOYED FOR THE BENEFIT OF MEMBERS:			
Publications and merchandise		\$ 540,744	\$ 491,796	(Per accompanying statement)		1,033,790	970,581
Paper stock, printing and shipping supplies, etc.		61,455	80,392			\$2,534,074	\$2,372,502
		\$ 602,199	\$ 572,188				
Total current assets		\$2,144,603	\$1,969,168				
DEFERRED CHARGES		\$ 69,359	\$ 82,947				
FIXED ASSETS, at approximate cost:							
	Gross	Reserves					
Leasehold improvements	\$259,350	\$ 70,243	\$ 189,116				
Furniture and fixtures	211,224	95,693	115,531				
Printing machinery and equipment	37,026	21,564	15,462				
	\$507,609	\$187,500	\$ 320,109				
			\$ 320,387				
			\$2,534,074				
			\$2,372,502				

**STATEMENT OF INCOME AND EXPENSES
FOR THE YEARS ENDED DECEMBER 31, 1954 AND 1953**

	1954	1953
INCOME:		
Dues, publications and services.....	\$3,396,162	\$3,195,168
Contributions	583,440	594,186
Other income	66,124	75,258
	<u>\$4,045,736</u>	<u>\$3,864,612</u>
EXPENSES:		
Publications and materials	\$1,659,343	\$1,499,177
Technical and research	886,016	835,822
Administrative and general office (including depreciation and amortization of \$36,039 in 1954 and \$34,222 in 1953)	670,014	661,959
Membership, advertising and services.....	379,079	356,658
Publicity	167,794	165,485
Local chapter and council development.....	129,541	149,112
Contributive fund solicitation	60,740	95,294
	<u>\$3,952,527</u>	<u>\$3,763,507</u>
EXCESS OF INCOME OVER EXPENSES.....	<u>\$ 93,209</u>	<u>\$ 101,105</u>

**STATEMENT OF CHANGES IN NET ASSETS
EMPLOYED FOR THE BENEFIT OF MEMBERS
FOR THE YEARS ENDED DECEMBER 31, 1954 AND 1953**

BALANCE AT BEGINNING OF YEAR.....	\$ 970,581	\$ 935,611
ADD—Excess of income over expenses.....	93,209	101,105
	<u>\$1,063,790</u>	<u>\$1,086,716</u>
LESS:		
Adjustment of reserve for unfulfilled membership and service contracts for prior years.....	\$ 30,000	\$ —
Appropriation to reserve for contingencies.....	—	100,000
Reduction in fixed assets for physical inventory taken in 1953.....	—	16,135
	<u>\$ 30,000</u>	<u>\$ 116,135</u>
BALANCE AT END OF YEAR.....	<u>\$1,033,790</u>	<u>\$ 970,581</u>

**STATEMENT OF SOURCE AND APPLICATION OF FUNDS
FOR THE YEAR ENDED DECEMBER 31, 1954**

SOURCE OF FUNDS:		
Excess of income over expenses.....	\$ 93,209	
Noncash charges against income and expense (provisions for depreciation and amortization)	36,039	
Decrease in deferred charges.....	13,588	
	<u>\$ 142,836</u>	
APPLICATION OF FUNDS:		
Decrease in contributions and appropriations for special programs.....	\$ 12,749	
Net additions to fixed assets.	35,761	
Adjustment of unfulfilled membership and service contracts.....	30,000	
	<u>\$ 78,510</u>	
INCREASE IN WORKING CAPITAL.....	<u>\$ 64,326</u>	

SMALL BUSINESSES and ASSOCIATIONS

By A. M. BALTZER and
ROBERT D. CURRIE

Small Business Program Staff
National Safety Council

A Short, Short Story

Recently a high school lad who works part time in a prosperous suburban dairy store showed us a 5-page mimeographed *Training Bulletin* distributed by his employer, a small business man. In reviewing the bulletin we noted a paragraph titled "Safety" containing three lines, which, in effect, caution the employee to "Safeguard himself and the public, take no chances, and be careful." The bulletin was distributed with no further indoctrination or training.

The "Safety Training" was brief, but hardly adequate. Qualitatively, the rules were too general and vague to help teenagers in their first job. We might add that the store has had a number of doctor cases and at least two disabling injuries in the past three months—an infected scratch and a cut hand.

Why do we run this story on this page? We run it chiefly as a reminder to professional safety men and those who may forget that there are several million small employers who probably give even less attention to preventing accidents. Granted, they don't want their employees to get hurt but they really don't know how to go about preventing injuries.

It's our job—and it's your job—to reach these small businessmen and help them to prevent employee injuries.

Industrial Nurses' Pool

From the Trumbull County Manufacturers' Association comes word that the Association is developing an Industrial Nurses' Pool in Trumbull County, Ohio.

Because of two separate plant explosions last year when several employees were rushed to the same hospital at the same time, it was virtually impossible to se-

cure enough registered nurses on such short notice. Appeals for nurses went out over the radio, but it was two or three days before the needed assistance was obtained.

It was then decided to form an Industrial Nurses' Pool so that if disaster ever happens again, telephone calls to the right places will send several registered industrial nurses to the hospital within an hour. This is not a guarantee that any company will furnish nurses if called upon, but it is a pledge that they will do all possible to fill the need.

Isn't this something *you* can suggest in *your* community?

PMI's Safety Photo Quiz

An unusual feature of the safety session at the Pressed Metal Institute's Sixth Annual Spring Technical Meeting was the safety photo quiz.

Briefly, this is how the quiz is conducted. The audience of small stamping shop owners was divided into tables of eight, each with a "chairman." The participants were supplied with a number of

posed photographs, each illustrating a number of unsafe conditions or unsafe acts that are commonly found in the industry's operations. The men at the table jot down the unsafe conditions or acts in each picture and the "chairman" selects the best answers from his table. The winner from each table then reads to the audience the hazards he located; other winners read other hazards not included by previous "winners." To increase the competitive spirit the winners of the quiz had a choice of choosing a green bow tie, (it was the day before St. Patrick's Day) or one of the Council's Green Cross automatic pencils.

The PMI safety photo quiz and the lively discussion which followed averaged about three minutes per photograph and completely absorbed the attention of the audience. It's hard to imagine that they would go back to their companies without remembering some of the unsafe conditions and unsafe acts illustrated; and correcting their own unsafe conditions.

The Institute reported other proof of new interest in the form of follow-up requests for copies of the photo quiz for use in their member shops.

Briefs

The Liquefied Petroleum Gas Association is increasing its safety activities with the cooperation of NSC staff engineers who have participated in its safety committee meetings. The committee is now adopting employee material including a new set of LPG posters produced by the NSC.

The members of the American Waterway Operators have expressed an overwhelming interest in an association safety program. The AWO has launched a safety contest and as of last month, 50 are registered for this activity.

PMI'S SAFETY QUIZ 1955 SPRING MEETING



Published with the cooperation
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of the NATIONAL SAFETY COUNCIL

(ALL PHOTOGRAPHS POSED)

PRESSED METAL INSTITUTE CLEVELAND - 20-0410

A little thing that went over big at the safety session of the Pressed Metal Institute's Spring Technical Meeting.

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modern
eye protection**



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WITH ALL THESE EXCLUSIVE FEATURES . . .

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The outfit at the left looks like something you'd find stuffed with straw to keep the crows out of the corn. Oil-soaked garments are a fire hazard and may cause skin irritation. Long, loose sleeves may get caught in machinery.



Well-designed work clothes laundered regularly and kept in repair are important aids to comfort, health and safety as well as to the wearer's self respect.

Inviting an Accident

By HERMAN FINEBERG

MANY a workman is reporting for work in clothes with hazards built-in—garments that were unsafe for work in the first place or have become so through neglect.

Consider the loose or dangling sleeves, the floppy pocket flaps or loose apron strings. It's tempting fate to wear them around moving machinery. And when garments are not kept in repair, the hazard is increased. Rips, tears and lost buttons leave loose ends to catch in moving parts and on obstructions.

Another problem is cleanliness. When workmen supply their own

work clothes they do not have them changed or cleaned as often as they should. When clothing becomes soaked with oil, solvents or chemicals on the job, there isn't much incentive to keep it clean. Besides, these garments make a mess in the family wash and his wife may object.

When a man is wearing clothes soaked with oil, solvent, or combustible chemicals, it takes only a flash or a spark to turn him into a human torch. Even lighting a cigarette may be dangerous.

Making work clothing safe for the job has been engaging the attention of the Institute of Industrial Launderers for many years. It has been our pleasure to work with safety engineers through the

National Safety Council in promoting safe work clothing. We've also helped the American Standards Association draw up some suggested standards for work garments. Industrial laundries are now supplying hundreds of thousands of workers with well designed work clothes kept clean and in repair.

What are some of the faults in clothes worn on the job?

Long loose sleeves and neckties rank high on the list of hazards. Cuffs on trousers may cause tripping or catch on something. Ripped or torn clothing can catch on projections.

Dirt is another offender. In addition to detracting from per-

—To page 119

HERMAN FINEBERG is president, Institute of Industrial Launderers.

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PROFIT with
Monarch® FACE SHIELDS



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With Quick Ratchet Adjustment
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Many benefits are derived from the avoidance of eye and face injury. Properly equipped for safe operation, a man does his job with assurance and produces better products faster. His comfort reduces fatigue so that he applies himself to his job longer and with less strain. These factors invariably are translated into better profits.

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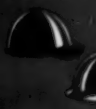
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Designed for marking hot or cold products, this unit features a reinforced outer box which levels the type holder on the piece being marked. The type holder is made of Mecco Safety Steel to give maximum resistance to spalling and mushrooming—thereby assuring greatly increased service life. Made for any size type.

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Sinclair Pipe Line Co., Arp, Texas
—suspended respiration due to
heart attack.

MELROY G. DIDIER, substation
operator, New Orleans Public
Service, Inc., Jefferson Parish, La.
—electric shock.

MRS. MOLLY EDMONDS, house-
wife, Toronto, Ontario—drowning.
Certificates of Assistance to RAD-
LEY AINLEY and JOHN W. BEN-
NETT.

RAYMOND A. GEMMER, shovel
engineer, Scott Paper Co., Sno-
homish, Wash.—drowning. Certi-
ficate of Assistance to WILLIAM
C. HOLM.

WILLIAM R. ROSS, assistant
safety inspector, Hood Rubber
Co., Watertown, Mass.—gas as-
phyxiation.

HENRY H. QUALLS, connection
foreman, Humble Pipe Line Co.,
McCamey, Texas—electric shock.

FRANK S. RUNYON, state traffic
officer, State of California, Dent.
Highway Patrol, Inglewood, Calif.
—gas asphyxiation.

JIMMY L. CALHOUN, geophys-
ical exploration, Gulf Oil Corp.,
Chickasha, Okla.—suspended re-
spiration due to lightning.

ROBERT R. SMITH, fire fighter-
guard, Veterans Administration
Hospital, Salem, Va.—electric
shock.

MARLIN E. FEIST, groundman,
Wells Electric Association, Wells,
Minn.—electric shock.

LEO LEY, line foreman, New
Jersey Bell Telephone Co., Ma-
plewood, N. J.—electric shock.

LEON C. ADAMS, driver-ground-
man, Public Service Company of
Indiana, Inc., New Albany, Ind.
—electric shock.

LEONARD SCHUETZ, paper maker,
Consolidated Water Power & Pa-
per Co., Wisconsin Rapids, Wis.—
electric shock. Certificate of As-
sistance to FRANK BENGERT.

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SAFETY SHOES
A Division of the Melville Shoe Corporation

GREEN CROSS NEWS



Activities of Local Safety Councils and Chapters

By TOM A. BURKE, Assistant Director, Western Region, NSC

Fort Wayne Industrial Meet

C. Russell De Reamer, safety services consultant for General Electric Company in New York, outlined a dynamic formula for an effective industrial accident prevention program at the Twelfth Annual Northeastern Indiana Safety Conference and Exposition at Fort Wayne, Ind., April 19-20. Robert P. Palmer, general foreman, Wheeling Steel Corp., Steubenville, O., gave a spectacular demonstration of oxygen hazards and discussed safety in welding operations.

Dr. B. L. Corbett, executive director, Milwaukee Safety Commission, contributed an inspiring talk on industry's responsibility to carry the message of safety out beyond plant gates and to participate more actively in community safety effort. Manager Ivan A. Martin of the Safety Council of the Chamber of Commerce, sponsor of the Conference, reports that the attendance exceeded all previous sessions and that the exhibit was the largest and best ever.

Reaching for a Billion m-h

Three hundred and sixty companies with 463,224 employees who worked 921,177,631 man-hours in 1954 participated in the Business and Industrial Contest of the Greater Los Angeles Chapter, NSC. The growth of the contest during the past few years has been remarkable and it is expected that within the next few months the competition will have a million workers participating. If that happens, it should not be long until one billion man-hours worked will have been reached.

The 1954 contest, awards for which were presented March 21 at a dinner at the Second Annual

Southern California Safety Conference, held at the Ambassador Hotel, Los Angeles, established an overall frequency rate of 6.68, which was 14.4 per cent below the 1953 contest rate. There were 60 perfect plant records, an improvement of 62 per cent in the perfection category. There were 703 fewer injuries in 1954 than in the previous contest year although the employee-hour total was increased by 42 million last year.

More than a thousand persons attended the dinner. The senior and junior "Sweepstakes Award" winners in the contest were Weston Hydraulics, Ltd., and the U. S. Industrial Chemicals Company. The Sweepstakes are the chapter's highest industrial awards. . . . More than 2,000 persons registered at the Chapter's Second Annual Congress. The Exhibit featured 53 displays. As in the past, the panel subjects and discussions were repeated each of the three days in order to accommodate all who wished to attend. Different speakers handled the various subjects each day.

New President for Santa Barbara

Richard G. Francois, retired businessman and widely known efficiency engineer, is the new president of the Santa Barbara Safety Council. He started his career in New York City with the Edison Company and rose to the presidency of Amalgamated Engineering and Appraisal Company. He became chief engineer for Columbia University, in charge of new construction, power plant operations and general maintenance.

For several years he was general superintendent of construc-

tion as well as mechanical and electrical equipment for the Federal Dyestuff Co., then the world's largest TNT plant. He has appraised many large operations including Armour & Co., the Washington, D. C. and Chicago street railway systems and large oil properties. He retired in 1944 and moved to Santa Barbara. Mr. Francois brings to the safety group a fine appreciation of the need for community action, a willingness to do something about it, and a rich background of experience as an engineer and business leader.

St. Joseph Plant Record

St. Joseph, Mo., companies in the Inter-Plant safety contest, sponsored by the St. Joseph Safety Council, made their best lost-time accident record in 1954, with a frequency of 7.74 accidents per million man-hours worked. The best previous records were 9.6 in 1952 and 9.74 in 1953. Eight thousand employees participated in the contest last year. Four companies completed the year with perfect records.

It's Safer in the Plant

Modern production and accident prevention methods have made the factory safer than the home, at least in the Blackstone Valley area of Rhode Island. At the 31st annual meeting of the Blackstone Valley Safety Council held recently in Pawtucket, it was pointed out that the industrial accident frequency rate in the immediate area has been reduced from 22.1 in 1944 to 10.55 in 1954, which brings it well below the national average.

Russell H. White of Corning
—To page 111

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COMING EVENTS



In the Field of Safety

May 2-4, Chicago

Thirty-second Annual Midwest Conference and Exposition (Sherman Hotel). Joseph F. Stech, secretary and treasurer, Greater Chicago Safety Council, 10 N. Clark St., Chicago 10.

May 2-4, Allentown, Bethlehem, Easton, Pa.

Twenty-eighth Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 692 E. Third St., Bethlehem, Pa.

May 5-6, Baltimore, Md.

Governor's Safety and Health Conference and Exposition (Lord Baltimore Hotel). Joseph A. Haller, executive chairman, c/o State Industrial Commission, 741 Equitable Bldg., Baltimore 2, Md.

May 13, Marinette, Wis.

Fox River Valley and Lakeshore Regional Safety Conference.*

May 16-18, Syracuse

Central New York Safety Conference and Exposition. Newell C. Townsend, administrative secretary, Safety Division, Syracuse Chamber of Commerce, 351 S. Warren St., Syracuse 2, N. Y.

May 17, Madison, Wis.

Rock River Valley Regional Safety Conference.*

May 18-20, Winston-Salem, N. C.

Twenty-fifth Annual North Carolina Safety Conference (Robert E. Lee Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

May 19, Racine, Wis.

Southeast Lakeshore Regional Safety Conference.*

May 19-20, Duluth, Minn.

Thirty-first Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). John A. Johnson, secretary, 18 Federal Bldg., Duluth 2, Minn.

May 25-26, Louisville, Ky.

Louisville Safety Conference and Exhibit (Kentucky Hotel). Estil Hack, executive vice-president, 214 Speed Building, Louisville, Ky.

June 2-3, Victoria, B. C.

Twenty-first Annual Forest Products Safety Conference (Empress Hotel). Pat Reiten, secretary, Simpson Logging Co., Shelton, Wash.

June 2-4, Richmond, Va.

Virginia Safety Association, Annual Meeting (Jefferson Hotel). William M. Myers, executive secretary, Virginia Safety Association, Room 302, 1103 E. Main St., Richmond 19, Va.

June 7-8, Hartford, Conn.

Tenth Annual Conference of the Connecticut Safety Society (Statler Hotel). William G. Willse, manager, National of Hartford Group, 1000 Asylum Avenue, Hartford 15, Conn.

Second Annual Conference, New England Accident Prevention Assn., meeting at the same time and place. Everett W. Martin, president pro tempore, 65 Whitney Ave., New Haven, Conn.

June 7, Wisconsin Rapids, Wis.

Wisconsin River Valley Regional Safety Conference.*

June 10-11, Orofino, Idaho

Sixth Annual Idaho Lumbermen's Safety Conference. L. M. McKay, secretary, P. O. Box 911, Coeur d'Alene, Idaho.

Sept. 13-15, Cleveland, Ohio

Seventeenth Annual Ohio State Safety Conference and Exhibit (Hotel Carter). Michael L. Stefani, general manager, Cleveland Safety Council, 2073 East 9th Street, Cleveland 15, Ohio.

Sept. 15-16, York Harbor, Me.

Twenty-eighth Annual Maine State Safety Conference (Marshall House). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Me.

Oct. 17-21, Chicago

Forty-third National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

*For information about Wisconsin regional conferences write R. W. Gillette, exec. secretary-treasurer, Wisconsin Council of Safety, State Office Bldg., Madison 2, Wis.

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Accident Barometer

Prepared by the Statistics and Research
Division, National Safety Council

All Accidental Deaths

THE TREND of accidental deaths in January was upward compared to 1954. The fatality toll was approximately 7,600 or 1 per cent above the total of 7,500 in January a year ago. There were increases in deaths from work and public non-motor-vehicle accidents and a decrease in fatal home accidents. Deaths from motor-vehicle accidents numbered about the same as last year.

Motor-Vehicle Deaths

The motor-vehicle death total was approximately 2,900, no change from January, 1954. However, compared to 1953 it was a reduction of 2 per cent.

Mileage data are not available at this time to calculate a rate on this basis.

Of the 47 states reporting for January, 22 had fewer deaths than in 1954, 2 had the same number and 23 had more deaths. Reporting cities with populations of more than 10,000 showed a decrease of 7 per cent from January a year ago. Of the 513 cities reporting, 112 showed decreases, 306 had no change and 95 had increases.

Regional changes from 1954 in the January death totals were:

North Atlantic	+ 5%
South Atlantic	+ 3%
North Central	- 6%
South Central	0
Mountain	+13%
Pacific	- 9%

Work Accidents

There were about 1,200 deaths from work accidents in January, or 100 more than occurred in

January a year ago.

The average frequency rate (disabling injuries per million man-hours) in fourteen sectional contests conducted by the National Safety Council was 5.20, a reduction of 2 per cent from 5.29 in 1954. The frequency rate for plants in community council contests was 5.15, a decrease of 21 per cent from last year.

Public Deaths

The January death total for public non-motor-vehicle accidents was 1,000, or about 100 more than occurred in 1954. There were increases in deaths from transportation accidents, burns and drownings. A large reduction occurred in fatalities from firearms accidents while deaths from falls numbered about the same as last year. Decreases were reported in deaths of children 5 to 14 years of age and persons 45 to 64 years old.

Home Deaths

The home accident death toll for January was 2,800, or 3 per cent below January last year. There was a large reduction in deaths from mechanical suffocation, a moderate decrease in fatalities from poisonings and a small reduction in fatal firearms accidents. Small increases were reported in deaths from burns and falls. Most of the reduction occurred among persons 15 to 24 years of age but deaths of children under 15 years and persons 25 to 44 years old also were less numerous.



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19 *Thoroughbreds*



. . . in the stable, yet this one is the favorite.

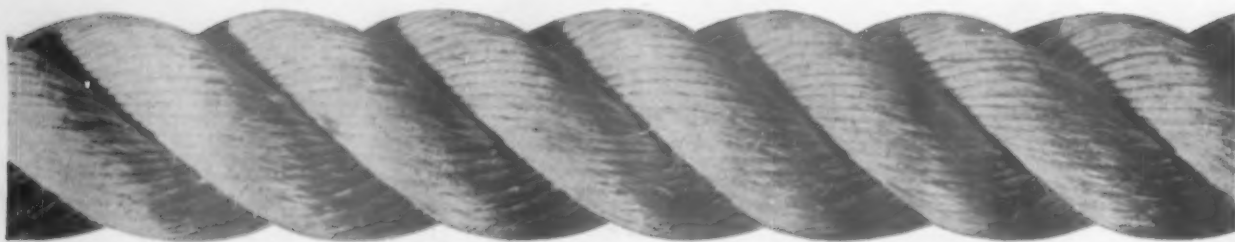
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New York Plans Rules For Radiation Exposure

PROVISIONS of projected State Labor Department regulations to protect New York State workers against dangers stemming from industrial use of atomic isotopes and other radiation have been announced by Admiral William S. Maxwell, chairman of the Board of Standards and Appeals.

Industrial Commissioner Isador Lubin estimated that 150,000 workers are employed in jobs where radiation hazards exist.

"The proposed regulations cover everything from shoe store fluoroscopes to isotopes used in industry," Commissioner Lubin said. "They will include uranium mines if any are developed in New York."

"The draft has been in preparation for two years. I hope that all interested citizens will appear at the hearings so that the Board can move swiftly to make any necessary changes and finally adopt the code."

Radioactive materials are used in industry mainly in printing plants, dial-painting, shoe stores,

veterinary hospitals, plants where industrial x-ray equipment is used as an inspecting device, during the handling of radium, and by research organizations.

Significant provisions of the draft include:

1. Balancing the amount of protection required against the degree of hazard, by setting up adequate standards but avoiding inflexible details that could either fail to cover new conditions or hamper future development. Radiation sources will be classified by type of equipment, and by areas of degree of hazard in applying these standards.

2. Special regulations, for shielding by lead or otherwise; for safe exhaust ventilation systems where loose radioactive materials are used; and for control of personnel contamination.

3. Setting up definite permissible weekly dose limits of radiation. An alternative quarter-year plan of permissible limits is also offered.

4. Registration of practically all installations that come under the labor law in New York State where radiation sources are manufactured, stored or utilized. Certain prescribed installations with minimum hazards are exempt from this rule.

5. Emphasis on education of workers and qualifications of supervisory personnel in an attempt to control exposure to radiation. Workers will be required to wear film badges where needed.

6. Requirement of protection surveys by employers on every installation in the State in order to give the Labor Department access to complete information on every potential radiation hazard. The initial survey must take place within one month after registration.

7. Keeping complete radiation records of individual workers in the plant.

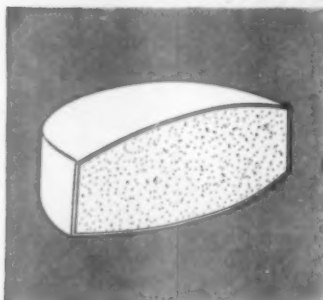
8. Labeling of equipment with prescribed warning symbols and signs.

9. A section on portable sources of radiation.

The proposed code is the result of efforts by a 26-man advisory committee composed of representatives of management, labor, the medical profession and State agencies, which started work in March 1953. After the Committee's report was sent to the Industrial Commissioner for approval, he submitted the proposals to the Board of Standards and Appeals.

After review by the board, public hearings are held, as required by law, in the principal cities of the State, giving all interested parties an opportunity to discuss them. When finally approved by the Board, the rules have the force and effect of law.

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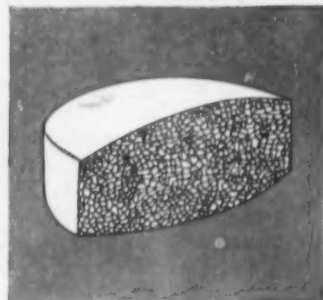


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MIT Announces Session On Noise Reduction

To present recent engineering advances in the field of noise control, the Massachusetts Institute of Technology will present a two-week Special Summer Program on "Noise Reduction" from August 15 through August 26.

"Noise as a national problem has continued to increase in importance," points out Professor Ernest H. Huntress, director of the M.I.T. Summer Session. "Since the 1953 program on this subject at M.I.T., new advancements have been made in the field. Case histories of solutions to noise reduction problems have materially increased in number."

Dr. Leo L. Beranek, Associate Professor of Communications, is in charge of the program, assisted by other members of the M.I.T. Faculty. Guest lecturers will include Robert F. Lambert, assistant professor of Electrical Engineering at the University of Minnesota; David C. Apps of General Motors Proving Ground; and Ira Dyer and Clayton Allen of Bolt, Beranek and Newman, Inc., Cambridge, Mass.

"An important part of the program," explains Professor Beranek, "will be teaching the use of materials for noise reduction and of apparatus for noise measurement. Selected exhibitions of products relating to the subject matter of the lectures have been arranged, and engineering personnel will be available to discuss the behavior of these materials."

Lecture topics will include: behavior of sound waves; decibels, sound pressure level, sound power level, and intensity level; sound transmission through walls and panels; quieting of engines; case histories of machine quieting, including punch-press operation and air-driven chipping hammers; design of mufflers and ventilating ducts; integrated noise control problems; and psychoacoustic criteria.

Full details and application blanks may be obtained from the Summer Session Office, Room 7-103, Massachusetts Institute of Technology, Cambridge 39.

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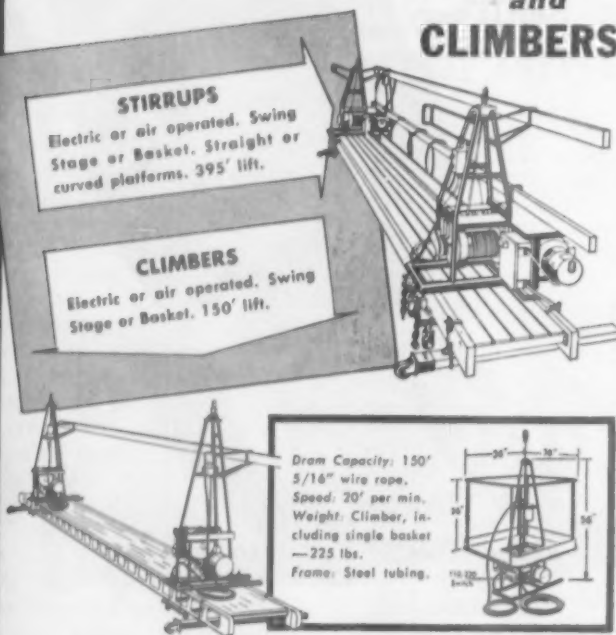
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Curved Platforms, Outriggers

Nagging Reminders

Simple tags at the Hanford atomic energy plant graphically point out hazards and are continuous reminders until the hazards are corrected.

The tag is a recent addition to the tools that helped General Electric, operator of the huge plutonium plant for the government, chalk up a record there last fall of over 9 million man-hours worked without a major injury.

The Hanford plant, since its beginning ten years ago, has used safety committees with rotating membership. The committee, armed with its numbered tags, makes a tour of its working area once a month.



On one of his monthly inspections, Wayne Springsteen spots and tags a damaged electrical plug. Protective clothing is worn by inspectors as well as by workers in all areas at Hanford where radioactive materials are used.

When they discover a hazard, they tag it, recording the date and nature of the hazard both on the numbered tag and in a report. It's up to the foreman or supervisor of the tagged facility to take corrective action, note this action on the back of the tag and forward it to the committee chairman. If he doesn't, the chairman needles him.

While attached to hazards, the red-printed tags are nagging reminders to the man in charge. After serving this purpose, they provide the safety committee chairman information to complete the inspection tour reports. Later, they can be used as discussion material at safety meetings.



FIRE TRAINING SCHOOL. Here at Marinette your key plant personnel will receive special training in the proper use of every type of fire

equipment. They will learn the basic techniques for fighting every kind of fire. This is the best equipped private fire training school in the nation.

There is no need to accept less than Ansul's complete fire protection program!



TRAINING DEMONSTRATIONS. Our fire fighting experts provide training in the use of Ansul equipment at your plant.



ALL ANSUL EQUIPMENT is backed by a five year warranty, your assurance of fast, effective fire protection.

Experience can be a grim teacher. It has taught many a businessman that you need a *complete* fire protection program to guard against ruinous fire damage. You need *fast, effective equipment*, plus *trained personnel* to man that equipment. Ansul offers *both* and at no extra cost. Get in touch with the Ansul man, he has the story about *complete* fire protection.

Call the Ansul Man!

Get in touch with your local Ansul man through the "yellow pages" or write **ANSUL CHEMICAL COMPANY**, Dept. F-32, Fire Equipment Division, Marinette, Wisc. Write Ansul for your copy of new Fire Equipment Catalog.



INDUSTRIAL HEALTH



Abstracts of current literature
on Industrial Hygiene, Medicine, and Nursing

BY F. A. VAN ATTA
Industrial Department, NSC

Rifle-Sling Palsy

Rifle-Sling Palsy, by Hascall H. Muntz, Ralph W. Coonrad, and Roary A. Murchison. United States Armed Forces Medical Journal 6:353-358 (March 1955).

PERIPHERAL NERVE PALSIES as an occupational hazard in military service have not been unknown in the past and two examples are "Bombardier's Palsy" and palsies from the pressure of the shoulder pack in infantrymen. This seems to be the first one attributed to the use of the rifle-sling.

The first cases seen were three infantrymen in basic training who reported to the dispensary with complaints of numbness and weakness of the left arm; the only changes found on neurological examination were limited to the left arm. Neither infantry officers nor medical officers assigned to the infantry, at that time, were aware of this particular type of injury but when the syndrome was brought to the attention of the physicians, an additional 18 patients who had reported to dispensaries and who had not been diagnosed were referred to the orthopedic clinic.

The condition was characterized as are other motor nerve difficulties resulting from pressure or repeated trauma on nerves by muscle group paresis involving those muscles supplied by the nerves, sensory changes in the skin areas supplied by the nerves, vasomotor instability as shown by skin color changes with changes in the atmospheric pressure, vascular or nerve phenomena resulting in temperature changes of the affected part and petechial hemorrhages and scaling of the skin at the site of pressure.

The condition is caused by ex-

cessively tight slings on the arm during long sessions of firing. The tight sling is the greatest single aid to accuracy.

Prevention in this case can be accomplished by using a fixed loop sling and by loosening it when not actually firing. Recovery may be very protracted if the injury is not recognized early and avoided.

Toxicity of Newer Insecticides

Chlorinated Insecticides: Toxicity for Man, by Lemuel C. McGee. Industrial Medicine and Surgery 24:101-109 (March 1955).

THE INCREASE in the number of insecticidal materials available during the past ten years has been nothing less than phenomenal. The chlorinated hydrocarbon group of insecticides have caused some cases of poisoning and it is inevitable that if the material is to be poisonous to insects, it will be more or less poisonous to humans. The number of illnesses and deaths from their use has been relatively low compared to the quantity used. It can be further cut by education in proper handling of the materials.

The chlorinated hydrocarbon group are similar in being soluble in fats and in common organic solvents and insoluble in water, relatively stable chemically and in acting as convulsant poisons in the warm blooded animals, with the exception that methoxychlor has not been shown to have any effect on the central nervous system unless accompanied by carbon tetrachloride. Its effect in large doses is primarily on the liver and its toxicity is relatively low.

There are variations in the amount of chlorinated hydrocarbons which is stored in the fat and there are variations in the grade of metabolism.

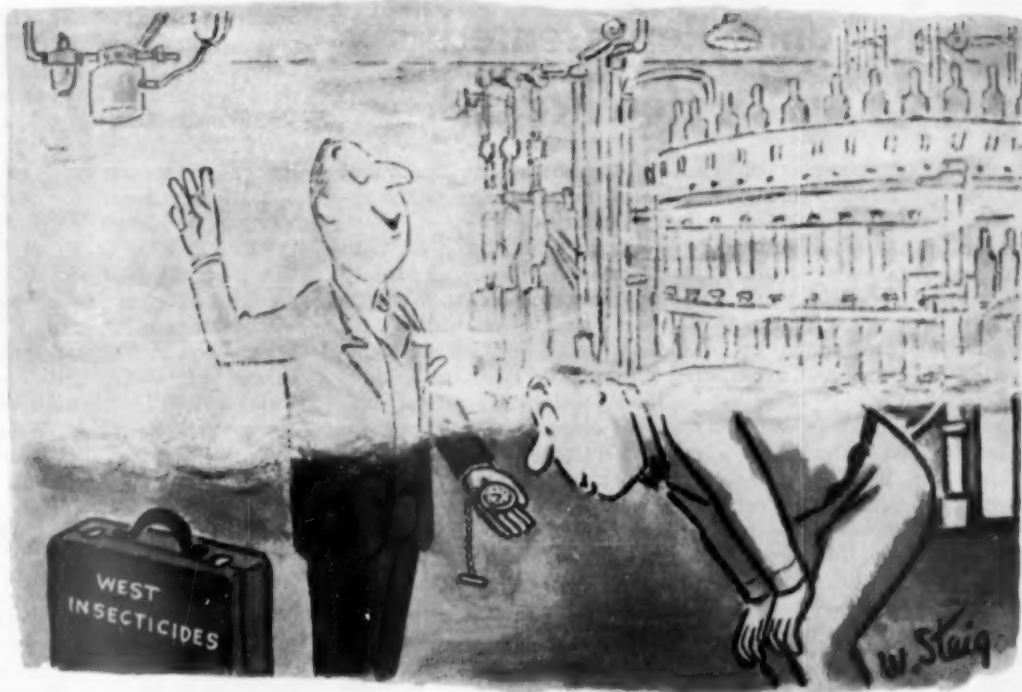
There have been more reports of poisoning and suspected poisoning of men by chlorophenothane (DDT) than by any of the other chlorinated hydrocarbon insecticides.

In acute poisoning in man, from ingestion of DDT, the early symptom is loss of sensation in the lips, tongue and face followed by dizziness and weakness. Tremors start around the eyelids and face and spread to the body and arms and legs, and nausea and vomiting may occur. This is followed, if the dose is sufficiently large, by convulsions. The mechanism of this is not understood and the organ changes found in fatal cases are not sufficient to explain the death. One result is that recovery from even severe DDT poisoning is not apt to be followed by residual effects.

In a case of mild DDT poisoning where 25 army personnel in Australia ate pastry made with DDT mistaken for baking powder, they all suffered from a feeling of giddiness and weakness commencing one to two and one half hours after the meal. The two men most severely affected were confused, staggered and had blurred and thick speech, and complained of pins-and-needles sensations in the hands and arms. All the men recovered within 48 hours.

There have been a number of other mass poisonings attributed to the same type of errors, all

—To page 113



"See! Only 30 seconds to fog this room!"

THAT's how quickly you can control insects in 10,000 cubic feet of space with WEST ATOMIZERS and VAPOSECTOR insecticide.

Insects have no place to hide. VAPOSECTOR penetrates everywhere

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- at a cost as low as 5¢.

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- ☐ I'd like a free copy of your booklet "*Industrial Insect Control*."
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Position _____

(Tear out this coupon and mail it with your letterhead)

Many Lands Represented At Oil Conference

FIFTY-ONE REPRESENTATIVES of the world-wide manufacturing system of Socony-Vacuum Oil Company and its affiliates gathered at the Magnolia Petroleum Company refinery in Beaumont, Texas, March 29-April 1 for Socony's annual refresher course in modern safety practices and fire-fighting techniques.

Small tanks and buildings were specially constructed at the Beaumont refinery for "live" demonstrations of fire fighting under simulated refinery conditions. A unique exhibition was the use of the new jet-type fire extinguishing method for putting out, from the ground, a blaze atop a 30-foot tower.

In charge of the four-day program was J. L. Risinger of New York, head of safety and fire protection for Socony-Vacuum. Aiding him were Parker C. Folse,

safety director of the Beaumont refinery, and members of the refinery's safety division.

Sessions began March 29, with classroom work on refinery safety topics and fire problems. Wednesday and Thursday were filled with field demonstrations of fire fighting equipment, latest techniques in blaze extinguishment and methods of rescue. The program ended Friday with a summary of classwork and field work, followed by a tour of the refinery.

Nine states and five of the world's six continents are home to the delegates. They come from New York, Illinois, Michigan, Kansas, Rhode Island, New Jersey, California, Indiana and Texas, from the Philippine Islands, Madagascar, East Africa, Australia and Colombia.

From foreign installations were N. E. Begin of Cucuta, Columbia,

South America, who is safety supervisor for Colombian Petroleum Company; N. P. Gautret, operations engineer for Standard-Vacuum Oil Company, Madagascar; J. S. Darroch of Nairobi, Kenya, East Africa, assistant operations engineer for Standard-Vacuum in Kenya.

Also, Ted B. Wirth of Palembang, Sumatra, Indonesia, safety administrator for N. V. Standard-Vacuum Petroleum Mij at Palembang; Leon T. Monzon, Jr., supervisor of Standard-Vacuum installations in Manila, Philippines; and S. E. A. Walker of Sydney, Australia, operations manager for Vacuum Oil Company, Pty., Ltd., New South Wales.

Narrow roads where two cars could barely pass are being replaced by wide freeways on which six or eight cars can collide at the same time.

* * *

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where "Touch"

and "Feel" are important

No. 8000 gauntlet, for light industrial use. Working hands are protected but still sensitive to "touch" and "feel". It's coated with natural rubber; net-lined so that rubber doesn't touch the hand. A special rough surface assures firm grip. Small, medium, large sizes.

Write for free catalog — shows the RIGHT Hood neoprene, rubber or plastic coated glove for EACH job.

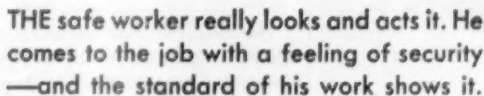
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The logo for Stonehouse SIGN features a circular icon with a hand inside, followed by the word "Stonehouse" in a script font and "SIGN" in a bold, sans-serif font.

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"Signs Since 1863"



Nuclear Society Announces First Professional Meeting

The American Nuclear Society, an organization composed of scientists and engineers engaged full-time in industrial, governmental and educational aspects of atomic energy activity, has announced plans for the first professional nuclear society meeting ever to be held.

The three-day session, which will coincide with the first annual

meeting of the American Nuclear Society, will be held June 27-29 at Pennsylvania State University, State College, Pa.

The meeting will be representative of all major interests in peacetime atomic energy, according to J. A. Lane, director, reactor experimental engineering division, Oak Ridge National Laboratory, program chairman. Included will be papers on fast reactor technology, experimental nuclear techniques, radiation ef-

fects on biological and physical systems, sources and economics of reactor materials and nuclear chemical problems.

The conference has been specifically designed to appeal to engineers, physicists, chemists, life scientists and metallurgists, Mr. Lane said. Papers presented will deal with new and interesting data not previously published in the nonsecret literature of the atomic energy field.

Five symposia have been organized for the meeting, which will be climaxed by the Society's first annual banquet on the evening of June 28.

The symposia will cover the following subjects:

1. Fast reactor technology, including papers on liquid metal pumps and engineering problems with uranium.
2. Experimental nuclear techniques, including papers on neutron beam techniques, fast exponential critical experiments and nuclear techniques used in studying radiation damage to humans.
3. Radiation effects on biological and physical systems, including papers on chemical protection against radiation and effects of radiation on metals.
4. Sources and economics of reactor materials, including papers on production of heavy water and high temperature beryllium alloys.
5. Nuclear chemical problems, including papers on recovery of fissionable material and processing of reactor fuels.

The meeting will be similar in concept, according to Mr. Lane, to the International Conference on the Peaceful Uses of Atomic Energy to be sponsored by the United Nations at Geneva, Switzerland, August 8-20.

The American Nuclear Society meeting will be open to non-members, as well as members of the American Nuclear Society. There now are approximately 400 members of the organization.

Information concerning the meeting may be obtained from Prof. W. W. Miller, Pennsylvania State University, State College, Pa.

Simpkins suffered from heat fatigue—and his work was extremely poor.



Now Morton Impregnated Salt Tablets help Simpkins work fast and sure.

You can hold down accidents caused by heat fatigue

Be sure you have plenty of Morton Yellow Impregnated Salt Tablets handy. Their controlled dissolving action gives immediate relief without causing nausea.

Essential body salt lost through perspiring is immediately replaced, but at a gradual rate. Your employees feel better, work better more safely, when they take Morton Yellow Impregnated Salt Tablets.

Morton Yellow Impregnated Salt Tablets come in a handy disposable dispenser. Plastic and heavy-duty aluminum dispensers are also available, as are plain salt tablets.



Complies with Federal Specifications SS-S-31a for Type III, Class C Impregnated Salt Tablets

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Pittsburgh COLOR DYNAMICS

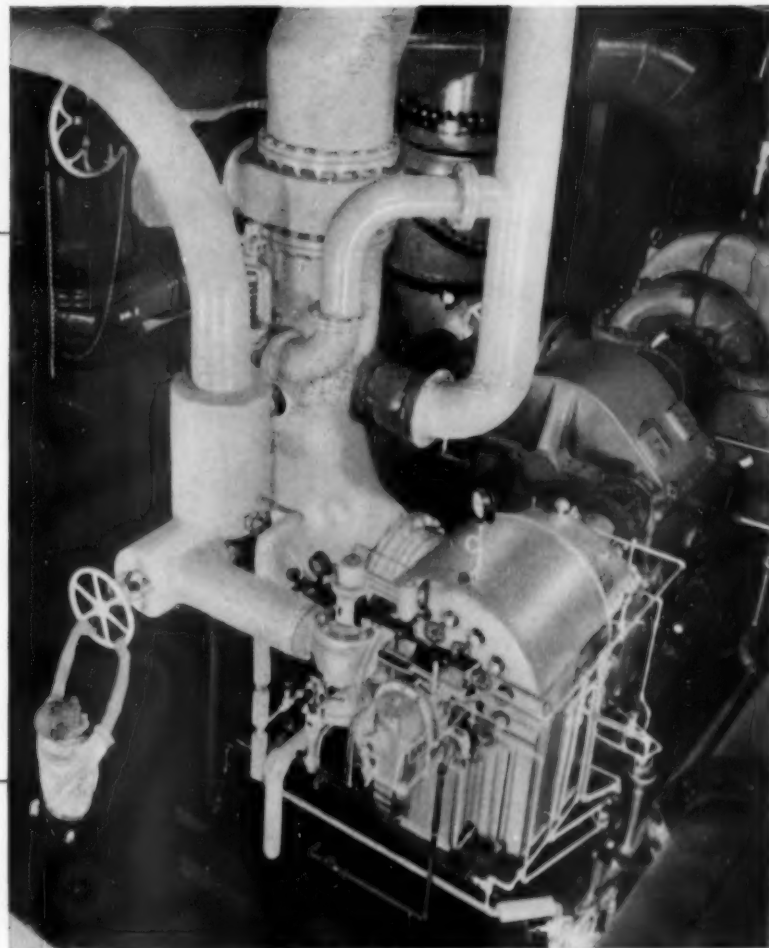
Helps Improve Safety Record 400% in Steel Mill!

Putting color to work in Jones & Laughlin's cold finishing department increases safety record from 1,027,000 man-hours without time-loss accidents to an all-time high of 4,858,579!

BY MAKING workers more safety conscious, focusing their attention and minimizing fatigue, Pittsburgh COLOR DYNAMICS has helped to lower the accident rate phenomenally in the cold finishing department of the Pittsburgh Works of the Jones & Laughlin Steel Corporation.

During the time this department was painted according to ordinary shop practice, its best safety record was 1,027,000 man-hours without a lost-time accident. Since being repainted according to COLOR DYNAMICS, its safety record has zoomed to an all-time high of 4,858,579 hours. *An increase in safety of nearly 400%!*

"Naturally, we are very pleased with such improvement in our workers' safety," comments Superintendent Joe Seyler, of the mill's cold finishing department. "But we believe



Forests of huge pipes in pump and boiler houses of J & L's Pittsburgh Works are easier to identify since pump lines were painted in dark green with black bands, and vacuum lines in yellow with bands of green and white.

that this is just one of many benefits that have resulted from putting color to work the COLOR DYNAMICS way. By using eye-rest colors on stationary or non-critical parts of machines we have made these areas seem to recede. By contrast, moving or critical parts have been made to stand out. Our operators see their jobs better. With less eye strain there is less fatigue, and lessened fatigue results in more and better productivity.

"Eye-rest and morale-building colors on walls and ceilings have

provided more pleasing surroundings that have enhanced the morale of our workers. They take pride in keeping their work areas cleaner and more orderly, thus simplifying housekeeping. And we get all these benefits without paying any more than conventional maintenance painting has cost us."

Why not test the practical value of COLOR DYNAMICS in your plant? Paint a machine—or a department or two—and see the difference it makes in efficiency, morale and safety.

Get a **FREE ENGINEERED COLOR STUDY** of Your Plant!

● Send for our free book which explains simply and clearly what COLOR DYNAMICS is and presents scores of practical suggestions on how to apply its principles. Better still, call your

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CHARLES R. COX

Portrait by Fabian Bachrach

"I urge every executive..."

"I know of no better method for each citizen to protect the American way of life than by building his own economic security and by helping his Government to keep financially sound. Both these results can be accomplished through the Payroll Savings Plan. I urge every executive in the nation to give this Plan his active and vigorous support."

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With the active cooperation of Mr. Cox, Kennecott

conducted a person-to-person canvass which put a Payroll Savings Application in the hands of *every* one of Kennecott's 20,000 employees. The men and women of Kennecott did the rest. Country-wide participation in Kennecott's Payroll Plan rose from 24% to 52%.

Your State Director, U. S. Treasury Department, is ready to help you install a Payroll Savings Plan, or show you how to build participation in an existing Plan through a simple person-to-person canvass. Write today to Savings Bonds Division, U. S. Treasury Department, Washington, D. C.

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A NEW WAY TO SAVE LIVES!

A Rallying Call To Safety Engineers . . .

TODAY, every company is liable—and responsible—
—for hundreds, thousands, of employees and families, who drive cars millions of miles a year . . . cars and trucks that breed accidents, injuries, deaths—when stalled on the highway.

All these companies also have Safety Engineers trained and responsible for the safety of these people on the highways—across the nation. Here is the logical starting point for greater Highway Safety . . . for a nation-wide Safety Crusade.

Most deadly of highway smash-ups are the "Sitting Duck" (stalled vehicle) accidents you read about every day, as in this spread from LOOK. Accidents that in 1954 killed 1,120 and injured 87,740 . . . caused two-thirds of all emergency calls—over 28,000,000 "E. S." (Emergency Stop) alarms.

Accidents that can be avoided in an easy, inexpensive way—with a warning signal that warns approaching motorists and indicates to them to do likewise when a car is stalled.

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Suppose YOU, Mr. S. E., in YOUR Company, adopt this safeguard, and equip every company sales car with a set—every executive car—employee car—company trucks . . .

Suppose YOU see your responsibility larger—and "carry the torch" for this Idea into YOUR Industry in YOUR Community . . . as a personal achievement in industrial, community and public relations . . .

How long will it then be—with the Professional backing of Safety Engineers, until EVERY DRIVER, on all highways, will see so many Warning Signal-Protected vehicles that they too, and all considerate drivers, will so protect their cars and those passing in the traffic?

For complete plan to organize this traffic safety program in your company, community, industry . . . write or phone . . .

FREE; copy of LOOK Magazine spread reporting deadly cost of stalled vehicle accidents. —————>



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VARI-FLARE . . . The unfailing (Reflector) Highway Warning Signal, is sponsored, accepted, sold, used by many leading manufacturers of trucks and cars, many Safety Departments and thousands of other companies. It exceeds all I. C. C. requirements; is approved by Underwriters' Laboratories, AAMVA, Patsig Laboratory, and all States requiring reflector flares.



Two
Vari-Flares
in rack

Vari-Flares available in sets of one or two. Cost: less than a carton of cigarettes.

Vari-Flare sets up in one motion, instantly, in dark. Genuine Stimsonite lenses reflect 24 c. p. over 1/2 mile (four times as brilliant as average tail light). Stable in extremely high winds and built to last a lifetime.

On FIRST CALL, several of the world's leading corporations have already recognized their public relations responsibility and opportunity by accepting the recommendation of their Safety Directors to make this highway warning signal available for all company and employee vehicles.



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In Ply-Garb, modern developments in plastic are used to create clothing with amazing protection

against industrial hazards. Whether it's oils, resins, solvents, heat or water—there's a Ply-Garb garment to fit the job and protect the wearer.

Made for comfort, Ply-Garb's new plastic weaves are soft, silken in texture and extremely light in weight. They can be tailored for complete freedom of action. Ply-Garb retains its flexible comfort and appearance through repeated washings.

Ply-Garb outwears cotton and wool 10 to 1. Ply-Garb must pass severe tear and strength tests—assures garment life many times beyond the normal wear of ordinary fabrics. This longer wear eliminates frequent and costly replacements.

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The Standard of Perfection in Protection
Write for Details and Literature

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PERSONALS



Paul Hill Heads NSC Field Services

PAUL F. HILL, NSC field director who has been a member of the staff of the National Safety Council for the past nine years, has been promoted to manager of the Council's Field Service Dept.

The new department is an integration of the field service staffs of the Field Organization Department, the Annual Inventory of Traffic Safety Activities, and the Signs of Life Program.

Mr. Hill joined the National Safety Council Staff as a field representative in January 1946. Since 1951, he has had the position of field director, Inventory and Grade Crossing Programs, for 13 western states.

He served as liaison with state and city traffic officials in the West for the President's Highway Safety Conferences and the White House Safety Conference. Prior to World War II service as a Navy training officer, Mr. Hill was director of safety for the State of Iowa and for five years, executive secretary for the Iowa State Safety Council.

The Field Service Department will provide assistance to community and state safety organizations and officials. It will represent all areas of activity of the National Safety Council, calling upon other program departments for technical field service in specific fields.

Expansion of Council services

SAFETY ENGINEER AVAILABLE

B.S. and M.S. in chemistry. Ten years experience as process engineer and plant foreman in synthetic fuels and chemical manufacturing activities. Ten years as Safety Director in similar operations. Have successfully established and administered four different accident prevention programs in plant and area basis. Present salary \$800 per month. Member A.S.S.E. Prefer west or northwest. Address Box 450, NATIONAL SAFETY NEWS.



Paul J. Hill

call for the addition of five representatives to the present staff of six. Two representatives have been named. They are:

JAMES K. WILLIAMS, formerly executive vice president of the Safety Council of Western Massachusetts, and JOHN C. HALL, formerly director of traffic safety, Greater Los Angeles Chapter of the National Safety Council.

Obituary

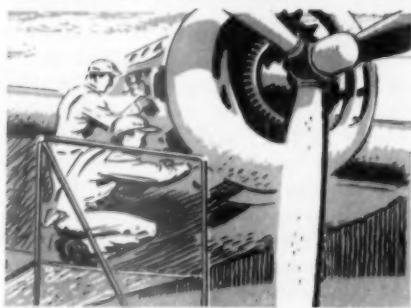
HAROLD L. MINER

HAROLD L. MINER, director of safety and fire protection activities for E. I. du Pont de Nemours, from 1926 until his retirement October 31, 1950, died March 5.

Mr. Miner was born in West Hartford, Conn., in 1885. In 1904 he became associated with the National Fire Protection Association as clerk to the Special Hazards Committee and assistant editor of the *NFPA Quarterly*. In 1915 he became fire protection consultant for Du Pont and in 1926 he was appointed to head a new division combining safety and fire protection activities for the entire company.

Mr. Miner was a director of the National Safety Council for several years and vice-president for farms and homes, 1943-44.

Wherever fire hazards are present . . .



DU PONT **"X-12"**
Renewable-Type
FLAME RETARDANT

Work clothes treated with
"X-12"
FLAME RETARDANT
give protection...comfort!

ONLY FIRE CAN TELL THE DIFFERENCE between treated and untreated clothing! Du Pont's new, renewable-type flame retardant penetrates the fabric completely . . . gives maximum protection against flame and afterglow. Since "X-12" does not seal pores of the clothing, *comfortable* protection is assured your workers.

Both industrial and commercial laundries can easily apply "X-12" in an economical, one-step operation. Re-applied with each washing, it gives clothing immediate protection against spread of flame . . . with no loss of tensile strength, hand, color, or texture.

LET US TELL YOU MORE ABOUT "X-12." Our colorful brochure describes its many industrial and commercial applications. See "X-12" in action . . . conduct your own flame tests on treated and untreated swatches. For your free copy, mail coupon below.



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"VIKING" Fibre Glass Helmet —New Self-Finish Gray



This new Fibre Glass Helmet is really a "tuf hombre." On the basis of the drop ball test, it is five times stronger than the ordinary fibre helmet. It combines extraordinary ruggedness and stamina, assuring long life and unusual service. The outside is a smooth self-finish gray, preferred by many welders. It does not show ordinary dust spots and the color cannot wear off. The inside has a dull black finish to eliminate reflections. Here are additional specifications:

- 1 Fibre Glass has no grain, therefore no weak spots.
- 2 Does not transmit heat. Keeps welder cooler. Has elasticity to withstand rough treatment. Will not absorb moisture, therefore holds its shape.
- 3 Equipped with new improved Sel-O-Matic ratchet type headgear; has larger and stronger teeth. Easily repaired if necessary; adjustable to fit any head. New popular Lift Front plate holder.
- 4 Headgear and plate holder are interchangeable with any of the other headgears and plate holders listed in the Sellstrom catalog.

Fibre Glass Welding Helmets are constantly growing in popularity. This gray helmet should be an outstanding winner, should meet with instant popularity among welders. Our guarantee of this helmet is backed by more than 30 years' experience in designing and manufacturing every type of eye and face safeguard.

Order from your Sellstrom dealer. Or write us for a sample No. 233 Fibre Glass Helmet on memo for test purposes.

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MANUFACTURING COMPANY

Eye and Face Safeguards Designed for Utmost Comfort
222 Hicks Road, Palatine, Illinois

Something to Celebrate



EMPLOYEES of several sections in The Dow Chemical Company's plastics department at the Midland Division passed the 3,000,000 man-hour safety mark without a disabling injury on March 24 and became the first group in Dow plants throughout the United States and Canada to achieve this record.

Minutes after the goal was reached, employees in the award-winning group celebrated with a parade through the plastics building and heard congratulatory remarks by C. B. Branch, manager of the plastics department, S. M. MacCutcheon, director of the safety department and A. T. Maasberg, technical director of the Plastics Production Department, who represented the Executive Safety Council. The Council has supervised the Midland Division safety program since 1947.

Departmental sections participating in the safety record are plastics technical service, coatings technical service, textile technical service, sales, plastics IBM tabulating, Styron warehouse and plastics management, with 363 employees making up the group.

The last disabling injury in the group was on January 12, 1948. The one million man-hour mark was reached on November 29, 1951, and the two million goal on October 29, 1953.

The group will celebrate the achievement at a later date with a dinner "on the company."

How to Keep on An Even Keel

All of us are subject to nervous fatigue. How do we minimize it, keep a calm frame of mind and a steady disposition, and stay on an even keel? Here is a five-point formula offered by Dr. Austen Riggs, pioneer in psychotherapy of the Austen Riggs Center, Stockbridge, Massachusetts:

1. Do one thing at a time. Give it your full attention, and complete it.
2. Make clean-cut decisions.

When you have to do something, don't waste time "getting up steam" to do it.

3. Do not accept hurry as necessary in your work. Hurry destroys quality, and quality spells success.

4. Eliminate worry. It is inefficient thought, whirling around a pivot of fear. Get rid of worry by eliminating actions that are uninformed, indecisive, and hasty.

5. Keep work, play, rest, and exercise in their proper relative proportions.

MICRO SWITCH Trip Control

A PRINCIPLE OF GOOD PRODUCTION



This chart shows wide variety of press control methods available

- 1 One operator—two hands.
- 2 One operator—two hands or one foot.
- 3 One operator—two hands or either hand or one foot.
- 4 Two operators—one to four hands, any combination, or one foot.
- 5 Three operators—one to six hands, any combination, or one foot.
- 6 More than six hands, any combination, or one foot.

Step up power-machine production by 10 to 25%

• MICRO SWITCH Trip Controls provide a three-fold advantage when installed on your manually operated power machines. All of them spell increased production—sometimes as much as 25%.

1 Instantaneous electrical response of this clutch control boosts production by increasing the number of machine operations in a given period.

2 Almost universal application—available for single stroke or repeat operation—two hand or multiple station control—and for automatic cycling or inch control for hydraulic or pneumatic presses.

3 Protection for both operators and set up men. This Trip Control cannot be "cheated." Any component failure breaks the clutch operating circuit automatically.

MICRO SWITCH Trip Controls can usually be used without additional equipment on machines already equipped with solenoid or air cylinder clutch actuators. Where other clutch-actuating equipment is required MICRO SWITCH provides a complete installation package.

It will pay you to check the many advantages of MICRO SWITCH Trip Controls for your power machines. Write to MICRO SWITCH, Freeport, Illinois, for catalogue and for the name of the distributor nearest you.

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
FREEPORT, ILLINOIS



Pre-Vacation Reminder



This grim object lesson reminded Caterpillar Tractor employees to drive safely as they left for last summer's vacation.

At 3:18 P.M. last July 2 the first of some 21,000 Caterpillar Tractor Company employees at the company's Peoria, Ill., plant scurried

to the time clock to punch out for the last time before the long-awaited annual two-week vacation. As the happy throng poured

out through nine main gates, they were met by a grim scene: mindful that three employees were killed while on vacation last year, the company had placed nine smashed-up automobiles at the various exits.

"We wanted to alert our people to the fact that some drivers are murderers on the highway," H. S. Simpson, safety manager, said.

Signs over the wrecked cars read:

"This car was driven by a man who isn't able to take a vacation."

Folders entitled "Killers on the Loose" depicting scenes of fatal accidents and listing speeding, carelessness, drinking and discourtesy as the major causes of traffic fatalities, were distributed to the vacation-bound workers by plant protection and safety personnel.

Keep Important Facts Handy!

Be realistic about these trips... if something happens to you and your family you might be too dazed or confused to keep the facts straight. Be sure you make the best of any situation: fill out the below information and keep it in your car.

My name and address:

NAME _____ AGE _____
 ADDRESS _____
 CITY _____ STATE _____
 WIFE'S NAME _____
 NEXT OF KIN: NAME _____
 ADDRESS _____ PHONE _____
 AUTO LICENSE _____ MAKE _____ MODEL & YR. _____
 HOSPITAL INSURANCE _____
 INSURANCE CO. _____
 POLICY NO. _____
 AUTO-COLLISION _____
 INSURANCE CO. _____
 POLICY NO. _____

WE (ARE) (ARE NOT) ALLERGIC TO "WONDER DRUGS."
 (CROSS OUT ONE)

In case of accident, those who arrive at the scene are aided by the above information. Employees were urged to fill out this form and keep it in the car.

When paying a visit to George Bernard Shaw, a caller expressed surprise that the author had no flowers in his home.

"I thought," he said, "you were fond of flowers."

"I am," Shaw retorted. "I'm very fond of children, too, but I don't cut off their heads and stick them in pots around the house."



Stop Insect Bites

with "6-12" Insect Repellent

Workers swatting insects can't keep their minds on the job. The result? Production drops and accidents rise.

Why run this risk? Protect outdoor workers from mosquitoes and black flies, with "6-12" Insect Repellent. It's available in gallon cans for use in handy liquid dispensers, or in individual 2-oz. bottles and 1-oz. sticks. Costs less than a penny a day per user.

Write today for free samples and name of nearest supplier.

THEY'LL USE IT. Place these handy "6-12" Insect Repellent dispensers around the plant near the outdoor work areas.

Consumer Products Department
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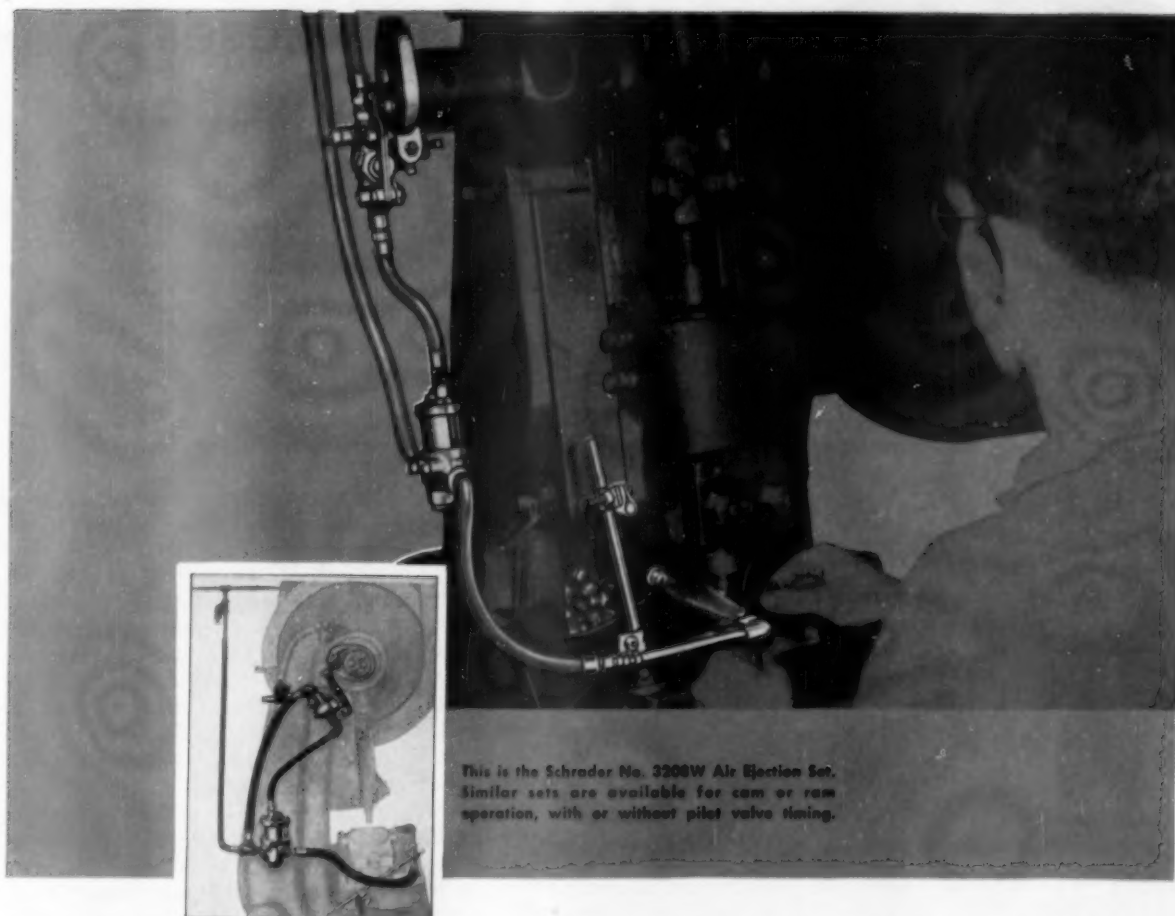
Please send me a free sample of "6-12" Insect Repellent: ☐ Stick ☐ Liquid

Name.....Title.....

Firm.....

Address.....

City.....Zone.....State.....



This is the Schrader No. 3200W Air Ejection Set. Similar sets are available for cam or ram operation, with or without pilot valve timing.

How to double production... reduce air consumption

With Schrader Air Ejection Sets on your presses, after each press cycle, there's a quick blast of air automatically timed to do the job just right—ready to take the next blank to be inserted in half the time it takes manually! No more tedious, dangerous hand removal! No more wasteful steady air blasts!

Schrader Air Ejection Sets come in many types to suit any need. You can buy them for cam operation off the crankshaft, or for roller tripper actuation from the ram. If the parts you are fab-

ricating are too heavy to be blown from the dies by an air blast, the Schrader Cylinder Knockout Set is available, which utilizes the knockout force available from a push-type Schrader Cylinder.

But regardless of the type of ejection you need, you'll find a Schrader set exactly suited to your requirements. Schrader Air Ejection Sets come complete with all necessary fittings, valves, hose and air line accessories—all ready to be bolted to your press. Write for specification data. Fill out the convenient coupon below and mail today.

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Backs, Neuroses and Compensation

CLINICAL evaluation of 160 typical back injury cases in workmen's compensation from a cross-section of industry in New York State revealed "the bankruptcy of medical diagnosis," and 80 per cent of the cases are "characterized by the presence of an anxiety state" rather than degeneration of a lumbar disc, Dr. Henry H. Kessler, orthopedic surgeon and internationally recognized authority on rehabilitation, disclosed in a 228-page report to the Commerce and Industry Association of New York, Inc., recently made public.

Following is an abstract of the report:

Although all the tools of medicine were available and used, the cases were characterized by isolated and one-dimensional observation, by luxurious waste and "conspicuous consumption" of medical talent. There was no essential difference between the type of diagnosis arrived at by the specialist and that made by the general practitioner.

No public or private medical program could justify a medical system in which 10 to 20 physicians were employed to diagnose or treat a single individual. How much better it would have been had the talents of all these physicians been coordinated!

Early treatment of low back pain is important. The present comparative unconcern about back pain is part of the primitive folklore of medical care—"if we do not pay any attention to it, it will go away." Initiation of the following four-point program is recommended:

1. If a claimant has not returned to work within 60 days after an injury-causing accident, the case to be referred to a rehabilitation team in a community hospital for clinical diagnosis and prognosis.

2. Establishment of advisory committees in state and county medical societies whose function it shall be to formulate guiding principles of diagnosis and disability evaluation. (Organized medicine must assume responsibility for research in this field.)

3. Establishment within the Workmen's Compensation Board of a full-time medical division whose function should be the supervision of the whole program of medical care under workmen's compensation; establish, through general orders in association with advisory committees of organized medicine, basic principles of initial treatment, rehabilitation review, disability evaluation, physical rehabilitation and research.

4. Establishment of a rehabilitation division within the Board with power to carry out its function.

A prominent feature of all the cases studied was the prolonged period of disability and the lengthy administrative process. Report after report emphasized the lack of objective evidence to corroborate the subjective complaints of the patient; natural enough, since few of the examiners directed their attention from the patient's back to his total personality.

In almost half of the 80 per cent of cases in which the anxiety state and neurotic behavior dominated the pattern of symptoms, evaluation of psychiatric and social case work findings indicated intrinsic factors in the patient's personality appeared to be the determinant. In the other half, where extrinsic factors of a litigious nature were dominant, there were numerous hearings and copious examinations and conferences, and im-



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A king-size oil quench is a bad enough fire hazard by itself. Put it next to a roaring, 1700 degree hardening furnace, and it could turn a plant into a cinder pile!

So the Allen Manufacturing Company discovered when they installed this hardening and tempering machine in their Hartford, Connecticut plant!

From the hardening furnace, hex-socket screws are quenched in oil, tempered, then quenched again. A flash fire in the huge oil quenching bath could mean loss of the machine, costly down time—and possible loss of the entire plant!

Safety-minded Allen executives naturally took proper precautions, held the oil far below its flash point with thermostatic temperature controls. Still, they realized that more protection was needed!

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All fire hazards—dip tanks, flammable liquids and electrical equipment—are potential plant-wreckers. Make sure they get the *proven* protection of Kidde extinguishing equipment. Call your Kidde agent today!

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provements did not occur until there was a final award or settlement.

We have found that the present compensation system of medical care is inadequate to control neurotic behavior, relieve symptoms or reduce the period of disability. Only through a revolutionary change in methods can we expect any improvement, and this revolutionary change is orientation toward the rehabilitation system. Rehabilitation demands that physicians cooperate among themselves, with the members of the industrial commission, and with all the para-medical personnel identified with the program.

Workmen's compensation is still suffering from an Oedipus complex, he went on. It is still nursing at the breast of employers' liability and it derives its strength from the milk of dependency. Its very vocabulary, emphasizing, as it does, disability and dependency, expresses this deep and obsessive

association. We need a new look at the role of workmen's compensation in society today.

Maximum benefits for the workers with minimum costs to employers are basic objectives of a modern compensation program. Its goals should be: (1) restoration and rehabilitation of the disabled worker to optimum physical, mental, social and economic well-being; (2) assured, prompt and adequate cash benefits; and (3) their provision through arrangements that will minimize costs to employers and society.

The objective of rehabilitation goes beyond accurate diagnosis and expert treatment; it is no less than restoration of the whole man to a useful function in society. With this in mind, the medical profession may have to modify some of its time-honored ideas. Free choice is not the issue here, but the maximum type of medical service which can be given to the worker to insure his prompt re-

covery from his disability.

In the management of the case, the medical profession must abandon the traditional one-dimension point of view and adopt the modern theme of teamwork. The doctor must leave his accustomed niche of isolation and work cooperatively with others. A review of the cases revealed that as many as twenty doctors would sometimes examine or treat a single case. In the majority of instances, very few of these doctors worked together toward an achievement of the diagnosis or toward the management and treatment of the patient.

Doctors must not only cooperate with each other but also with social workers, psychologists, vocational educators, employment counsellors, private welfare agencies, government officials, employers, insurance companies and unions. Only through the cooperative collaboration of this team of para-medical workers can rehabilitation be fully successful.

The rehabilitation team in a community hospital, which would treat patients away from work 60 days, would be composed of a vocational counsellor, a social worker, a neuropsychiatrist, an orthopedic surgeon, a psychiatrist, and such other consultants on the staff as are required by the individual case. The team would prepare an evaluation which would include a clinical diagnosis and prognosis and indicate the course of medical treatment that would best effect the patient's cure and rehabilitation. The report then would be submitted to the claimant's attending physician.

Dr. Kessler's report, the result of more than a year's review and analysis of back injury cases in the conjunction with the continuing long-range study of the law's administration and operation in New York by the Special Committee on Workmen's Compensation of the Commerce and Industry Association, is being issued in book form, titled *Low Back Pain in Industry*. Copies are available to the public at \$2.50 each.

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Scientific Selection of Mechanical Workers

"Four out of every ten workers in the United States today are employed in mechanical or factory jobs—about 25 million personnel, of which one out of every four is a woman," reports Industrial Psychology, Inc., national psychological research organization, of Tucson, Ariz. "This large concentration of mechanical personnel, plus their product contribution to the profit-loss structure of the company, make proper selection methods a first personnel step in this job family."

In the mechanical-factory job family, we find six job categories, as indicated by psychological standards: unskilled worker, semi-skilled worker, factory machine operator, vehicle operator, inspector, and skilled worker.

The *Unskilled Worker* job area embraces jobs on the lower mechanical level. Assignments are of a minor, simple, routine, repetitive and detail nature, requiring no decision-making of any type. Such job duties are found as moving materials, loading, unloading, shoveling, cleaning, and other gross manipulation operations.

Three psychological aptitudes show up as important—eye-hand coordination (controlled brawn), perception of objects, and some tool-mechanical comprehension. Workers who qualify for higher level mechanical jobs (and are thus overqualified for unskilled worker) are poor risks, if kept in the unskilled job area too long.

The *Semi-Skilled Worker* was a creation of the industrial revolution (he may be destroyed by the presently developing electronic revolution of automation). He is usually a worker without special training, but has an "industrial literacy" with various types of tools and mechanical processes. His job assignments are fairly detail, routine and repetitive, such as assembly work, production line operations, etc.

Psychological aptitudes found important for the semi-skilled worker are eye-hand coordination, tool comprehension, object perception, and space relations—

three of these aptitudes are the same as required for the unskilled worker, but the semi-skilled worker must meet higher standards.

The third mechanical job area, *Factory Machine Operator*, is related to the semi-skilled worker. The psychological difference be-

tween the two areas is that the semi-skilled worker does work of a gross manipulation nature, as contrasted to the factory machine operator who does work of a precise coordination nature (either by machine or by hand).

The factory machine operator thus needs a good deal of eye-hand coordination and manipulation aptitude. His job is also related to the skilled worker area,

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Gu

in that close tolerances are followed, but differs from the skilled worker in that mechanical judgment is not involved. Typical factory machine operator job titles are cutter, press operator, grinder, lathe operator, finisher, watch or television assembler, welder.

The *Vehicle Operator* area embraces jobs involving the operation of a moving vehicle. His job duties are fairly detail and repetitive, but require a good deal of eye-hand coordination, perception aptitude, and particularly visualization of objects in their space relations.

The *Inspector* job is highly visual in nature, thus differing from other mechanical classifications. All the mechanical areas require object perception and space visualization aptitudes to some extent, but the inspector job is saturated in these, with coordination a minor trait. Inspector jobs range all the way from job duties which require mainly visual inspection of objects, to the inspec-

tor who accepts, rejects, or returns the product for re-work on the basis of standards involving his judgment or interpretation.

The *Inspector* job as described psychologically covers the visual type of inspection; workers at higher inspector levels may be in quality control, and classified as skilled workers or in the technical job family.

The sixth mechanical job area, and the highest mechanical classification (psychologically and otherwise), is the *Skilled Worker*. These are the men who make the machines, the patterns, models, working samples, tools, dies, templates, jigs; and who keep things running. The skilled worker's job duties are mechanically complex and difficult; and not routine or repetitive. They involve the planning and performance of tasks that require skillful use of tools and equipment, and an understanding of how machines and tools operate.

Psychologically, the skilled

worker needs good mechanical-tool comprehension, the other mechanical aptitudes described above but at a higher level, and paperwork aptitudes.

For scientific selection of mechanical personnel, the following psychological screens, all administered and interpreted in the company, are recommended:

1. Weighted application blank-short, followed by the screening interview (10 minutes);

2. Appropriate aptitude job-tests, available for each of the six mechanical job areas, or a composite package for the mechanical family (15 to 35 minutes);


3. Personality tests, either a test of general stability, or of extrovert-introvert personality, or both (5 minutes per test);

4. Weighted application blank-long, followed by placement interview in which all the above data are brought together and hiring decision is made (15 minutes for application, and 20 minutes for interview).

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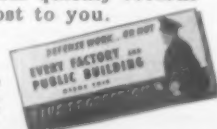
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Army Given Highest NSC Award



Presentation of the National Safety Council Award of Honor was made to the United States Army during ceremonies held March 24 at the Pentagon.

Ned H. Dearborn, president of the National Safety Council, made the presentation to Major General Robert N. Young, Assistant Chief of Staff, G-1 (Personnel). General Young, in turn, presented the award, highest given by the Council, to Eliot V. Parker, the Army's Safety Director.

In making the award Mr. Dearborn pointed out that the Army, with its world-wide operations, is faced with probably the world's largest and most complex problems in the control of accidents. Yet today it has one of the least complicated and most effective safety programs. Each year since 1942, Mr. Dearborn reported, the Council has reviewed a progressively finer program and, with the exception of one year, a more outstanding performance in the reduction of accidents.

At other ceremonies held in Washington, D. C., the Award of Honor was presented by Mr. Dearborn to Major General E. L. Cummings, who received it on behalf of the Ordnance Corps, and to Major General Kester L. Hastings, who received the award on behalf of the Quartermaster Corps. Lieutenant General Floyd L. Parks received the award at

Fort Meade for the Second Army. A presentation of the award made to U. S. Army Pacific will take place in Hawaii at a later date.

In accepting the Award of Honor, General Young announced that the Army's highest safety award, the Award of Merit, will be presented soon to Third Army, Fifth Army, Military District of Washington, the Signal Corps, United States Forces Austria, United States Army Europe, Army Forces Far East and Eighth Army and to the Army Antiaircraft Command.

Left to right in the above group are: Mr. Dearborn, Mr. Parker, General Young; Honorable Hugh M. Wilton, Assistant Secretary of the Army, and Honorable F. H. Higgins, Assistant Secretary of the Army.

No horse gets anywhere until he is harnessed. No steam or gas ever drives anything until it is confined. No Niagara is ever turned into power until it is tamed. No life ever grows great until it is focused, dedicated, disciplined.

—Harry Emerson Fosdick

Self-reliance and self-respect are about as valuable commodities as we can carry in our pack through life.

—Luther Burbank



Put Hexachlorophene protection in all your washrooms with Armour antiseptic hand soap!

Keep your employees on the job by providing Armour antiseptic hand soaps to remove the skin irritants that cause contact dermatitis. Even more important, the Hexachlorophene in these Armour hand soaps actually destroys skin bacteria that cause secondary infections!

Hexachlorophene is the first germicidal agent ever found that stays antiseptic in soap. Daily washing with these Armour soaps containing Hexachlorophene will remove up to 95% of harmful skin bacteria! That's real protection for the people in your company and may add benefits in insurance and labor relations, too.

So order Liquid Dial® or powdered Formula #99 for your washrooms today! (You can order the powder form with either Borax or a vegetable scrubber added.) Request the samples and booklet and see for yourself how Armour Hexachlorophene soap protects against contact dermatitis!

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National Safety News, May, 1955

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By DR. J. L. ROSENSTEIN

In industry we are interested in the maladjustments of normal persons and the prevention and correction of these maladjustments.

The most important criterion of normality is, "What is normal for the person himself?"

Untoward experiences in life and inability to cope with them are the factors that drive persons from the normal to the abnormal.

Every act and every experience in the lifetime of a person is connected with and directly related to every other experience and act that he might ever perform.

All ways of thinking, all attitudes, and all ideas existing at any time in life are only the end results of past development.

Delay in holding disciplinary or criticizing interviews which the employee knows must come gives him a chance to worry, "stew," and fret. This leads to resentment, anger, and defiance.

Maladjustment is never due to one single factor.

No psychological test score is of any greater value in the industrial scheme than the ability of the executive or examiner to interpret the meaning of the score.

"Reaction biography" is the name given to the life story of any reactions or ways of doing things.

Punishment may help a situation but does not wipe out maladjustment.

No such thing as a worthless act exists, even if it be a costly mistake, as long as it results in teaching us some behavior foresight for future use. The cost of a mistake may be looked upon as a form of tuition fee.

If you cannot see any evidence for believing a mistake to be a spiteful and deliberate act, then why "spank" a workman for something he would probably have wanted to prevent in the first place?

Use catharsis, a method of leading a person to "get things off his mind." Get employees to talk rather than spend your time figuring ways of "getting them told."

Nothing known to man, scientific or pseudoscientific, can be used as a test or measuring device that will give us a definite and accurate picture of the character, personality, and abilities of any human being.

There is no sure way known to man by which we can judge what a person is best suited for in life.

When an employee leaves an interview, be sure he goes away feeling that you are sincere and honest in your dealings and that he is always sure of a square deal from you.

Maladjustment means conspicuousness.

Dr. J. L. Rosenstein is assistant director of the Management Center, Marquette University.

SETTING SAFETY RECORDS ALL OVER THE NATION!

SURE-FOOT is the simple, economical solution to foot-traffic safety problems. A scientifically compounded abrasive paint and floor finish . . . SURE-FOOT provides a non-skid, non-slip surface for areas

where slippery conditions create a safety hazard. SURE-FOOT is easy to apply, and adheres to steel, aluminum, concrete, or wood. It resists water, oil, and grease. Available in five eye-easing colors: red, gray, green, black, and traffic yellow.

FREE! Write for Sure-Foot Bulletin 3-2 for complete details.



Frost PAINT & OIL CORPORATION
MINNEAPOLIS 13, MINNESOTA



Rockwood Nozzle SG-60 is of lightweight, durable, aluminum alloy with high-polished finish. Chrome plated bronze ball valve with synthetic rubber seat. All gaskets are synthetic rubber, all other parts are bronze, brass or stainless steel.

One nozzle fights fire 5 ways

This is the WaterFOG nozzle you can use to fight fire in 5 different ways.

It's Rockwood's "ALL-PURPOSE" SG-60 that makes unnecessary most special purpose nozzles. It discharges fire quenching High Velocity WaterFOG, Low Velocity WaterFOG (with applicator), FogFOAM or a solid

stream of water or FOAM.

This Nozzle is designed to put out Class A, B or C fires faster, safer and more economically. A quick shift of the handle instantly provides the right type of discharge for any type of firefighting job.

Put this efficient, versatile Rockwood SG-60 Nozzle to work for you.



ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses



High Velocity WaterFOG's solid cone pattern gives firefighter adequate protection from heat while quickly quenching blaze.



Low Velocity WaterFOG discharged with special attachment spreads umbrella pattern, smothering fire without causing turbulence to flammables.



FF extension discharging FogFOAM. Wide angle makes it possible to cover large areas at one time.



Shift to long range straight stream of water or FOAM can be made quickly and positively when required.

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
325 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet No. 3-20-8 on type SG-60 WaterFOG Nozzle and other Rockwood firefighting equipment.

Name _____
Title _____
Company _____
Street _____
City _____ Zone _____ State _____

Study Uranium Mines For Radiation Hazards

After five years of study of the hazards in the uranium mines in the Colorado Plateau, no conclusive proofs could be found as yet that the internal alpha radiation, ever-present in these mines, is a causative agent in lung cancer.

This was disclosed by J. D. Torrey, industrial hygienist, and P. W. Jacoe, chief of the Environmental Health Services of the Colorado State Department of Health, at a meeting of the American Conference of Governmental Industrial Hygienists, a part of the Industrial Health Conference recently held in Buffalo.

"We cannot neglect the extremely high lung cancer fatality rate among the European miners working with similar materials," they explained. "But statistically the sample in this country is too small to draw any valid conclu-

sions as yet. However, we do not anticipate a duplication of the European experience because we have a more complete understanding of the problems and of the steps that are necessary to reduce the exposure of men to these hazards."

According to the two authorities, the hazards in these mines in addition to internal alpha radiation are dust, uranium and vanadium as metals, miscellaneous hazards (such as fumes from Diesel-operated equipment), and the combination of all four. The most economical way to control the hazards, they said, is by well-planned ventilation.

"Each mine, however, offers a unique problem from the engineering standpoint," they stated. "The problems are multiplied because of geographical location, lack of water, lack of electrical power, and many other shortages. Furthermore, the average num-



"What scares the pants off me about this job is driving home in all the traffic."

ber of workers per mine is 3 to 4. Any mine employing 10 people is a large mine, and those employing over 25 can be counted on your fingers."

This Ladder Will Reduce Accidents In Your Plant

"GOLD MEDAL" SAFETY PLATFORM LADDER

1. Top slotted for tool rack to prevent injury from fallen tools. (3/4" x 7" x 18")
2. Large slatted platform (14" x 19") lets worker stand with hands free. Angle iron supports give extra strength.
3. Safety shield over spreader joints prevents pinched fingers.
4. Truss rods and knee braces under every step.
5. Sturdy 2-5/32" rungs provide safe support for an assistant.
6. Best ladder stock for front and rear rails. Heavy gauge hardware plated to resist rust.

Tested and approved by Underwriter's Laboratories, Inc. Conforms to ASA and all local safety codes.

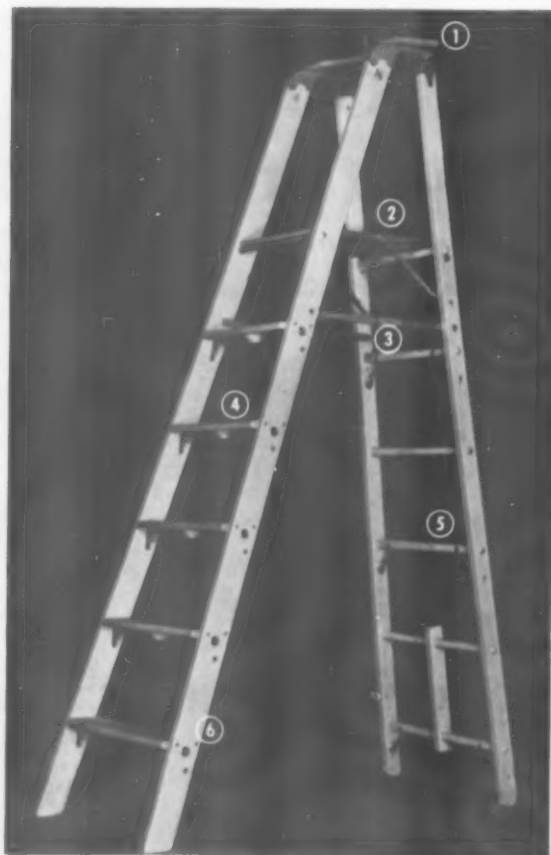
There are "Gold Medal" Ladders for every purpose. Single, Step and Extension. Wood, Aluminum or Magnesium.

FOR FULL INFORMATION WRITE FOR CATALOG L-71-R

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

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Branches in all principal cities





HEADGEAR Part No. 62

This headgear has been furnished on all Jackson fiber glass helmets and remains available.

It permits fitting to the head in $\frac{1}{8}$ " steps, clearly marked in hat sizes for quick, yet firm adjustment before putting the helmet on.

**Now You Have the Choice
of All Jackson Welding Helmets
at No Extra Cost, with the...**

NEW Jackson ADJUST-O-LOK

It *adjusts* quickly, *locks* firmly after putting the helmet on. Its fine adjustment permits tightening or loosening while wearing the helmet, as you may require. The large, winged knob is easy to handle, even while wearing gloves.

The mechanism, entirely enclosed, smooth against the head, has a minimum of moving parts. Both *knob* and *gear* are of Nylon, lightweight,

and non-conductive.

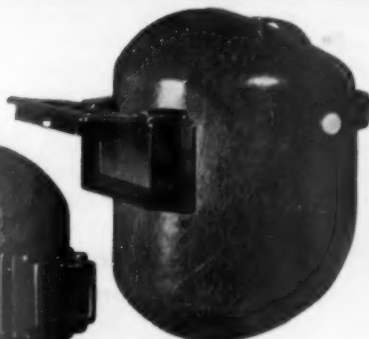
This new ADJUST-O-LOK Headgear is interchangeable with the No. 62 headgear, attaches to the same Jackson friction pivots, adjustable from the outside while in use. Plastic straps, of a new formula, are stronger, self-extinguishing. They're easy to clean. Cork-padded sweatband snaps on quickly, is inexpensive to replace.

CHOOSE FROM THESE JACKSON FIBER GLASS HELMETS . . .



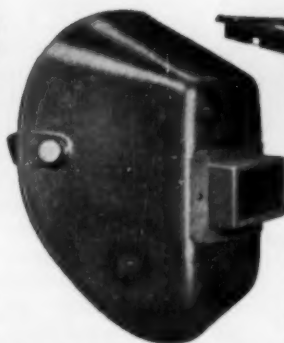
FIXED-FRONT type H-1

Available with metal lens holder or with the new, high-impact plastic lens holder as shown above.



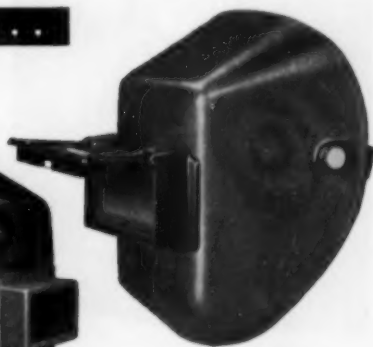
LIFT-FRONT type H-2

permits work inspection without raising entire helmet. Lens holder of high-impact thermosetting plastic has hinged door held by coil springs. Cover glass protects filter lens; another glass protects the eyes when front is raised.



FIXED-FRONT type H-3

of narrow-front design. All parts are interchangeable with type H-1. With metal or plastic lens holder.



LIFT-FRONT type H-4

This narrow-front, fiber-glass helmet has the same parts as type H-2, including plastic lens holder with hinged door for quick work inspection.

—WITH EITHER ADJUST-O-LOK OR HEADGEAR NO. 62

Also New . . .

HANDSHIELDS H-5 and H-6

They consist of the same fiber glass shells as Helmets H-1 and H-3 respectively, and are fitted with new plastic insulated fixed-front lens retainers and vulcanized fiber handles.



JACKSON
PRODUCTS, INC.
WARREN • MICHIGAN

SOLD THROUGH DISTRIBUTORS AND DEALERS THROUGHOUT THE WORLD

SPEAKMAN LIFE-SAVER EMERGENCY SHOWERS

FOR A

Drenching, Sloshing Deluge of Water

The moment an accident victim steps under a Speakman Emergency Shower, he is deluged with a flood that in a split-second douses flames or washes chemicals from the body instead of driving them into the skin.



- No holes to clog
- Withstands years of hard wear
- Slow, self-closing valve
- Flow up to 52 gal. per min.

Models available:

- S-2075—regularly furnished with chain to floor and floor flange
- S-2075—modified with short chain and 8" diameter pull ring
- S-2075—modified for horizontal installations
- S-2080—free-standing frost-proof unit for outside installation
- S-2085—with shower outside and valve inside the building
- S-2090—platform operated unit

For more information about Speakman LIFE-SAVER Emergency Showers, write for Booklet S-75.

SPEAKMAN COMPANY
Wilmington 99, Delaware

Obstacle Course for Fork Lift Operators



AN OBSTACLE COURSE for fork lift operators has been set up at the Lackawanna, N. Y., plant of Bethlehem Steel Company to serve as a check on the ability of personnel to operate the new trucks. The course is part of the comprehensive safety program of the plant, which in the last National Safety Contest won fourth place among Group A steel plants—with an accident frequency rate of only 1.00. The average for the entire group was 2.49.

The course, set up by the plant's mechanical department, provides short turns, dead ends, inclined approaches, forward and reverse movements, down hill movements, and braking under load conditions.

E. F. Martin, general manager of the plant, explained that drivers are required to traverse the course five times without incident to qualify as fork truck operators.

The program's objective in this case is the safety of not only the truck operators but personnel working in proximity to moving trucks. In another phase of the training program the operators answer a written questionnaire with 12 questions such as the following:

1. Before starting out with a

fork lift truck, what items would you check?

2. How high is it advisable to carry the forks when traveling?

3. How would you drive down a ramp when loaded or empty?

Another contribution to safety is management's requirement that supervisory personnel closely observe the daily performance of lift truck operations to insure compliance with departmental safety regulations.

Guard Radium Capsules, Committee Warns

THE SERIOUSNESS of recent personal injuries and the size of property damage claims resulting from accidents with radium-filled capsules used in commercial and laboratory work is the basis for a special bulletin issued by the Special Hazards Committee of the Association of Casualty and Surety Companies' accident prevention department.

Listing two theft cases where amputation of the injured man's hand or leg was necessary and several where severe property damage resulted, the bulletin outlines the following steps which should be taken to safeguard against further mishaps with the powdered radium most commonly used in medicine and industry:

1. Personnel assigned to handle the



Dr. Coon is Superintendent of University of Wisconsin Hospitals in Madison. Wausau surprised him. "For a city this size to have *two* large, modern hospitals is unusual enough. But even more unusual is the spirit of the people behind them. You see the very latest equipment, such as the X-ray therapy machine pictured here. You find, too, wonderful touches of comfort—radios that play 'privately' under patients' pillows—and filmed books projected on the ceiling for easy reading."



Senior Student Nurse Darlene Krause, Dr. Coon, Students Peggy Kennedy and Ellen Klimck.

"I talked with nurses at St. Mary's Hospital, on a very exciting day. The two young ladies on the right, called 'probies,' have just completed the probational period of their 3 year training course. St. Mary's has an excellent nursing school, attracting girls from all over the state."



Memorial Hospital Administrator, Miss Olive Graham, shows Mr. and Mrs. Vernon Anderson their new daughter.

"The largest woman's organization in Wausau is a *hospital* group—the Women's Auxiliaries of Memorial Hospital. With 1600 members, everyone gets a chance to pitch in and help, instead of the burden falling on just a few."

Why angel fish . . . pillow radios . . . and 1600 volunteers
add up to something that
can help you buy insurance wisely

Wausau Story

Dr. Coon's story tells you something of the *Wausau personality*.

You may live in New York, Atlanta or Seattle. But you're never really far from Wausau. Not far from the "Wausau way" of doing things . . . and people who lean a little backwards to help you. You'll find this *Wausau personality* in all 92 Employers Mutuals offices throughout the country.

Our specialty is *workmen's compensation*, and we handle all

lines of fire and casualty insurance as well. Here are just a few of the reasons why our policyholders tell us we're "good people to do business with." A reputation for unexcelled service and fairness on claims. An accident prevention program that can mean lower insurance costs. A record of consistently high dividends. And service, *direct from the company*, that saves time and headaches. Call any Employers Mutuals office, or write Wausau, Wisconsin.



DR. HAROLD COON VISITS WAUSAU

Dr. Coon with Nurse June Watson and children in a hospital playroom.

"Wausau really takes care of its youngsters. In this hospital, for instance, there's a large, sunny playroom well filled with toys and games, and an aquarium of tropical fish, all of which have pet names. One little girl told me: 'We get to eat supper in here so we really have a party every day!' The Wausau newspaper does its part, too. It prints, free, progress reports written by the kids in the hospitals."

Employers Mutuals of Wausau



tiny capsules should be kept advised of the dangers involved and precautions needed in their use.

2. The use and storage of containers should be under effective supervision so that the location of all containers is known at all times. It is preferable that capsules be kept under lock and key when not in use and that a constant inventory be maintained.

3. Equipment used to handle the capsules, especially mechanical equipment, should be designed so that the containers are not subjected to shocks and jarring movement.

4. Measuring equipment should be available for detecting unusual radiation conditions such as those resulting when a container is lost or broken. Meters designed to respond only to beta and gamma radiation are unsatisfactory and may give false readings of the amount of radiation present. Alpha meters, while more difficult to calibrate, give a truer picture.

5. Containers of all types, i.e., glass or very thin metal such as platinum or aluminum, should be checked regularly to eliminate the possibility of undetected leakage.

6. Personnel should be instructed in proper procedures to follow in case a capsule is broken so that contamination will not be spread.

7. Personnel should know whom to contact in the event of loss or breakage of a container.

The bulletin, which is distributed to the member companies of the Association and reaches the insured public through them, also lists five basic rules to be followed if a radium emergency should arise:

1. Do not attempt to clean up the spill.

2. Close all windows, stop ventilating equipment and leave the room immediately.

3. Remain in the close vicinity of the exit until a radioactivity check can be made of shoes, hands, clothing and equipment. The check will prevent spreading of the contamination.

4. Lock all doors and seal all cracks, from the outside of the room, if powdered or gaseous sources of radiation are involved.

5. Contact a consultant experienced in radiation hazards. Decontamination of persons, buildings and equipment should be conducted only under qualified supervision.

While radium is being replaced for many uses by radioactive cobalt and other new radioisotopes, the bulletin points out that the safety rules listed apply to those materials also.

Principal cause of concern among radium users, according to the bulletin, is that a capsule will be lost or stolen. Since the material is so valuable and the container so small—often less than an inch in length and 1/16 inch in diameter—it offers great temptation to thieves. The usual result of such theft is severe injury to the thief, frequently after only very brief exposure.

In cases of loss or misplacement, the bulletin says, the capsule is most frequently found either in the same room where the loss occurred or in a trash pile, incinerator or sewer. The radium is most apt to be found if a search is started immediately after the loss is discovered and is directed by an experienced radiation man.

Information contained in this and other special hazards bulletins may be obtained through any of the 116 member insurance companies of the Association.

What a good many people are looking for these days is less to do, more time to do it in, and more pay for getting it done.

**SOME
PREFER
STAINLESS STEEL
SOME—
VITREOUS ENAMEL
AND
SOME PREFER—
PRECAST STONE**



Giddings & Lewis Machine Tool Co. has the Precast Stone Models.

• All Bradley Washfountains provide for sanitary group washing at a saving of space, water consumption and piping connections. To meet various preferences, they are available in *precast stone* (several color effects), *vitreous enamel* (white or forest green), and *stainless steel*.

The 54-in. full circle model serves up to 10 simultaneously, cuts water consumption by 70% and piping connections by 80%. Foot-control eliminates faucets and contaminating faucet contacts—prevents water waste because flow is cut off automatically.

Bradleys, produced for over 30 years, are widely recognized as the standard in washroom equipment. Write for complete information.

BRADLEY WASHFOUNTAIN CO.
2237 W. Michigan Street, Milwaukee 1, Wisc.



BRADLEY
Washfountain

Distributed through Plumbing Wholesalers



At the Diamond Chain Company plant, Stainless Steel Washfountains are preferred.



At Canadian Industries, Ltd., Toronto, white Vitreous Enamel Models were selected.



At Sheaffer Pen, Precast Stone Washfountains have been in use for years.

Dirty Glasses are **DANGEROUS**



Install

**SIGHT
SAVER**

Cleaning Stations

PROMOTE SAFETY . . . 25% of all industrial accidents are caused by faulty vision.

INCREASE PRODUCTIVITY . . . 30-40% of production losses are traceable to eye-caused accidents.

REDUCE ACCIDENT COSTS . . . 1/2-billion dollars is the estimated annual cost of accidents due to foggy vision.

IMPROVE MORALE . . . make it easy for workmen to keep eyeglasses and safety glasses clean.

Getting workmen to wear safety glasses eliminates one safety problem but introduces another hazard — DIRTY GLASSES. And that's why you need Sight Saver Cleaning Stations to supplement your eye safety program. SIGHT SAVERS provide the quickest, easiest way to keep eye glasses and safety glasses sparkling clean. They wipe away the best excuse workmen give for not wearing safety glasses.

There's no muss, no fuss, no fluids, no wasted time. SIGHT SAVERS are saturated with Dow Corning Silicones to simplify cleaning and polishing glass lenses; to give added clarity and luster. Tissues are just the right size, 3" x 7"; treated both sides. And SIGHT SAVER Cleaning Stations are easily installed on metal, wood, glass or tile walls. Foolproof, permanently lubricated dispenser eliminates waste, issues a single tissue at a time. No maintenance involved. Simply insert refill packet as required.



READILY AVAILABLE*
from leading Safety Supply Houses

Cat. No. 60 Black Dispenser	\$2.50
Cat. No. 61 White Dispenser	\$2.50
Cat. No. 62 Safety Green Dispenser	\$2.50
Cat. No. 65 Refill Packet of 800 Tissues	\$1.45

*Write Dept. 8005 for list of Safety Supply Houses in your area.

DOW CORNING
Midland

**DOW CORNING
SILICONES**

CORPORATION
Michigan

"Next to My Family"

A Safety Engineer's Philosophy

"I love safety work and, next to my family, it is my life."

That is the stated viewpoint of A. R. Graham, a nationally recognized leader, who is now rounding out 34 years of safety work and 20 years of service as a safety engineer of the Bituminous Casualty corporation's Chicago district.

The briefest list of Graham's extra curricular activities in the safety field would fill columns, and because most of this work is done in the evening or on Saturday and Sundays when it will not interfere with his routine duties, his friends often question his unswerving devotion to the cause of safety. He has a ready answer.

"First, it gives me greater opportunity to make contacts with

the best men in the safety movement, and an opportunity to learn better ways to do things, so that I can be more valuable to my company and to myself.

"In addition, it gives me an opportunity to develop public relations for Bituminous, because when I make a speaking engagement I never fail to let my audience know by whom I am employed and where my first interest lies.

"I have picked up a vast amount of information from various outside associations, and in numerous instances have been able to pass valuable information along to Bituminous. Therefore, I feel the company has benefited from my avocation."

Mr. Graham joined Bituminous

in 1935, the first industrial engineer in the safety engineering department, which up to that time employed only mining engineers, among them the present head of the department, C. F. Herbert.

In a few years Graham was appointed supervising engineer of Bituminous' Chicago district and today he and his men cover an area of northern Illinois and Indiana that is one of Bituminous' largest in the production of business and in diversity of industries served.

Among Graham's many activities in the safety field are those of the Society of Casualty Safety Engineers, an organization designed to help insurance engineers keep abreast of developments in their field and which includes in its work sponsorship of the annual small plant session of the Greater Chicago Safety conference.

He has served two terms as president of the Society of Casualty Safety engineers; as chairman of the fleet division of the Greater Chicago Safety council and as general chairman of the power press and forging section of the National Safety council. He was chairman of a section committee which made an exhaustive national study of accidents in the power press and forging industry.

In recent years Graham has served as vice chairman and general chairman of the Chicago chapter of the American Society of Safety Engineers and is now representative of the chapter on the executive committee of the society.

He has been a delegate five times to the President's Conference on Safety, Washington, and also has served as a delegate to the Safety Conference called by the Governor of Illinois. He was chairman of a subcommittee on accident reporting at the latter conference and a member of the committee on insurance and services at the President's conference.

During World War II and afterwards Graham taught 17 classes on safety, including preliminary and advance courses. He is now preparing to teach a class on machine guarding, plant layout, stor-

Eyes DUSTY, DRY?

YOU NEED . . .
**FOG-PROOF,
GAS-TIGHT
GOGGLES**

... for paint spray, gases, dusts, fumes, smoke. They hug your face so securely that hazardous outside elements cannot reach your eyes. Fog is removed from lenses by an easy nod or shake of the head. The few drops of water placed on the inner wall of the lens do the trick. Can be worn with any respirator. Sample, \$2.00 postpaid.

H. S. COVER, SOUTH BEND, IND.

"Respirators for Industry since 1894"





WHAT HAPPENS NEXT?

If management has been wise, a fire tragedy will be stopped before it starts...if not, in 20 minutes extensive destruction and total loss could readily be the result.

First-rate fire protection is essential to the continued success of any business. With C-O-TWO Smoke or Heat Fire Detecting Systems, plus C-O-TWO High Pressure or Low Pressure Carbon Dioxide Type Fire Extinguishing Systems, as well as PYRENE Air Foam Type Fire Extinguishing Systems for specific outdoor locations, your plant can have fast, positive round-the-clock fire watchman service simultaneously at each fire hazard point... a fire tragedy is stopped before it starts.

Furthermore, there is a personal sense of responsibility inherent with PYRENE—C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety... a definite plus in your behalf. Whether it's fire detecting or fire extinguishing... portables or built-in systems... PYRENE—C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

Act now... don't take unnecessary chances with your investment any longer... the extensive experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Remember... a plant-wide fire protection survey skillfully executed today could be the means for greater profits tomorrow.



PYRENE — C-O-TWO
NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada



COMPLETE FIRE PROTECTION

portable fire extinguishers... built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

age and handling, in connection with an Illinois Manufacturers' association and insurance companies' project to counteract criticism of the underwriters' ability to service small plants.

Graham also manages to find time for speeches on safety before civic clubs, church groups and governmental bodies. He has been called upon to conduct tours for groups of safety specialists from abroad and is now busy, as representative of the Chicago chapter

of the American Society of Safety Engineers, in a project to establish an animated safety exhibit in the Museum of Science and Industry, Chicago.

Of his 38 years in the insurance business, Graham has spent 34 in the safety field, as he says, "doing everything except boilers." The other four years were in underwriting, auditing and special agency departments. He has always endeavored to improve his mental equipment, by study as

well as by experience. A graduate of Evanston academy, he spent three years at Northwestern university and then attended the University of Chicago, where he received his Ph. B. degree. He later spent a year at Chicago Technical college and now has 16 hours toward a master's degree.

Graham is a member of the "Veterans of Safety," and probably no more appropriate appellation could be applied to the "dean" of the safety engineering department of Bituminous Casualty corporation.

OVER-LOOKING A HAZARD?

You are if you are undersignalled!

All hazardous places or operations can't be eliminated, but their existence can be identified and pinpointed with an audible or visible warning signal.

A small investment in a FEDERAL Beacon Ray light, siren, horn or bell can save a life, avoid a painful injury or prevent a mechanical failure. One such saving, translated into dollars and cents may be the difference between business success and failure.

FEDERAL offers the most extensive variety of safety signals.



Write for
Industrial Signal literature.

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Chicago 19, Illinois



FEDERAL BEACON RAY

FEDERAL TYPE A SIREN

SIGNAL

Corporation

July Operation Safety Features Vacation Driving

Now that vacation time is near, most off-the-job safety efforts will be directed toward helping employees have a safe and pleasant vacation.

Operation Safety's July kit deals with the subject of vacation driving, and there are many items in it that will be helpful to the off-the-job safety director.

There are two leaflets on vacation driving, *Now's the Time to Enjoy Yourself!* and *Vacationland, Home—Have a Safe Trip!* Wide circulation of these leaflets will do much to promote traffic safety consciousness among employees. The hand-out box is about the best bet for leaflet distribution. They may also be passed out with pay checks or company literature.

The July traffic poster, *Vacationland, Home—Slow Down and Live* serves as an excellent reminder to employees to make safety part of their vacation trips. It comes in two sizes. The "A" size, which is 8½" x 11½", is just the right size for bulletin board posting. The "C" size is 25" x 38". This may be used at exits and entrances to plant parking lots and at any other indoor or outdoor area in which a large poster is needed.

Many other materials suitable for an off-the-job vacation safety program are included in the July kit. Information and prices on all items in the Operation Safety program may be obtained by writing to Operation Safety, National Safety Council, 425 N. Michigan Avenue, Chicago 11, Illinois.



B R E C K

B R E C K H A N D C L E A N E R

Breck Hand Cleaner is an efficient, heavy-duty cleaner which is non irritating and contains no abrasive materials. Breck Hand Cleaner cleans without lathering, and because of its mild yet thorough cleaning action aids in the prevention of skin irritation. About a teaspoonful of Breck Hand Cleaner is applied, without water, to the hands and arms and rubbed in well, followed by thorough rinsing. The excellent penetrating action of Breck Hand Cleaner loosens dirt, grime, and other soils and permits their easy removal in the rinse. Breck Hand Cleaner is formulated to rinse equally well in both hard and soft water. Breck Hand Cleaner has been found especially useful in helping to remove oil, grease, dirt, dust, grime, paint and other soils from the skin.

A Breck Industrial Preparations Booklet will be forwarded to you upon request.

JOHN H. BRECK, INC. • MANUFACTURING CHEMISTS • SPRINGFIELD 3, MASSACHUSETTS
NEW YORK • CHICAGO • SAN FRANCISCO • OTTAWA, CANADA

Automatic Units

—From page 23

tention. The base also should be designed in such a manner that it will lend itself to the application of automatic work-handling devices.

In a multiple-station machine, the base is usually designed to receive a stationary fixture having chip channels that will allow the chips to flow freely into a chip conveyor in the foundation. The automatic work-handling equipment is tailored to fit into the base and fixture as a unit.

The various stations usually have sliding heads on wing bases. These bases should be equipped with heat-treated or nonmetallic ways, protected from chips and automatically lubricated from a central lubricating system. When lubrication is automatic, there is a tendency on the part of maintenance men to neglect periodic inspection of the points of lubrication. Therefore, it is important to

provide a signal in case of any failure in the system.

A very important point to consider in a multistation machine is accessibility. Machine units should be spaced far enough apart to provide room for changing cutting tools and for the setup men to observe the cutting tools in operation.

Electrical Controls

Regardless of the type of automatic machine, whether a single machine or line of self-loading machines, certain basic requirements are necessary for good control. As the control becomes more complex, the means by which these are met must change. These requirements are:

1. Safety for the operator and maintenance men.
2. Safe failure of components with respect to the machine and work-piece.
3. Long life of electrical components.
4. Ease of maintenance.
5. Simplicity and flexibility of control for the operator.

Proper application of NMTBA or JIC Standards insures compliance with the foregoing to a considerable extent. Beyond this point, good electrical control is obtained by the proper choice of components and a carefully designed circuit. Both must be compatible with the machine itself, the man who runs it, and its physical surroundings.

Safety for Operator and Maintenance Men. Safety for personnel has two aspects; (1) avoidance of exposure to high voltage; (2) avoidance of unintentional movement of any part of the machine.

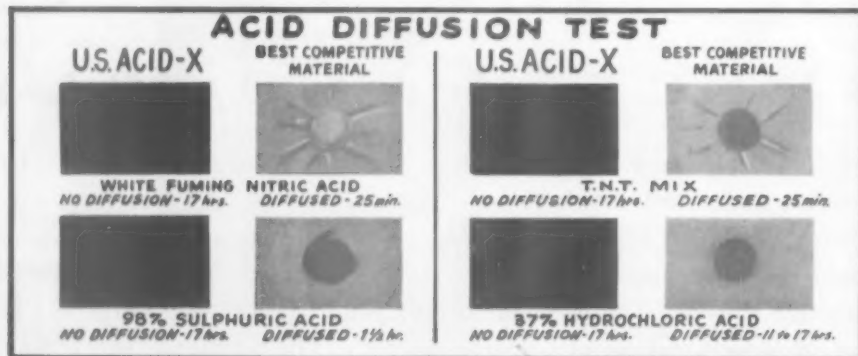
Avoiding electrical shock is a matter of mechanically good wiring, particularly on the machine, to prevent damage to piping and terminal boxes by trucks, personnel, etc.

Another important requirement is a disconnect switch or circuit breaker (to interrupt short circuits) through which all of the machine is fed. In the case of



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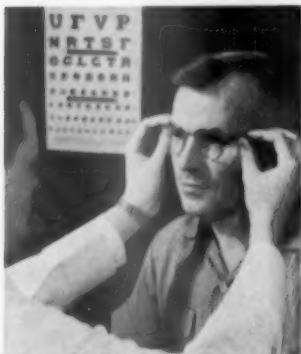
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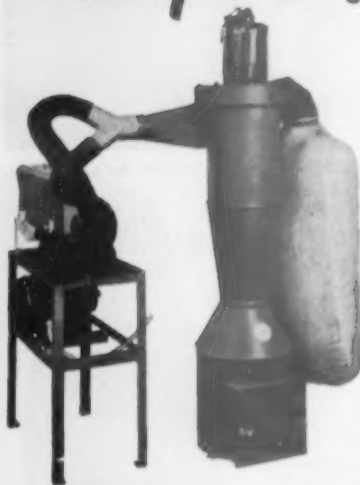
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multiple machines separate well-defined groups of machines may be fed through separate breakers or disconnect switches.

The breaker or disconnect switch must have its handle interlocked with the control cabinet door so that the door may be opened only if the power is shut off. This works out well and is specially necessary when the cabinet is on the floor or attached to the machine and all the control is in one cabinet.

Many automotive companies, using a line of large machines, mount the cabinets on a catwalk above the machine. Then this problem must be seen in a different light. Only the electrician is likely to be on the catwalk and open cabinet doors, therefore, the mechanical interlocking is less important. Also, the control fed by one disconnect switch may be mounted in several cabinets or one large cabinet with several doors.

The avoidance of an unintentional movement in small or single machines is usually fairly simple. The operator is able to see all parts of the machine, and since he may have only a few movements to remember, he will know exactly what to expect from each push button.

However, as the amount of machinery operated by one man becomes greater, the control requirements become more rigid.

On a large panel which controls a group of dissimilar units such as drilling, milling, boring, etc., it is then important to arrange push button stations in groups and in the same location as the units in the machine.

Safe Failure of Components

The failure of an electrical component must not cause a false operation of the machine but rather stop the movement depending upon this particular component. This becomes more important as the automation of machines increases.

One way to alleviate this is to design the control circuits so that as far as possible each motion is a result of energizing a relay coil, solenoid valve or starter. Then a wiring or coil failure results in a part of the machine not moving.

Mechanically latched relays are useful also in this respect. They may be used to energize a hydraulic solenoid valve and maintain fixture clamping even though part of the control may be de-energized due to a failure.

Also, latched relays must be used to determine direction of a head or shuttle travel. Then after a loss of voltage due to failure, the cycle may be resumed and the relay "remembers" which direction to send the shuttle or head.

These things are important for small tools, but when considering, for example, an automation line with 15 or 20 stations where work is machined and automatically handled, they become very important.

Life of Components

This factor is, of course, important regardless of the kind of machine being controlled. In automation lines, it is more important because a failure is usually harder to locate. Also if one machine in the line is down, the whole line may be without work.

The component must be properly chosen for the application. Then it must be protected from outside mechanical injury and dirt. Control cabinet doors especially need to be kept closed to protect relay contacts.

As greater numbers of machine tools are grouped together to function in unison without operator's attention, the number of limit switches, relays, solenoid valves, etc., required increases tremendously. All these items being mechanical in nature are subject to failure, causing increased maintenance and loss of production.

Much thought and development are being directed toward the replacement of these items with electronic eyes, vacuum or thyatron tubes, transistors and many forms of electronic devices.

Maintenance

Increasing automation causes maintenance to be more difficult and at the same time requires that it be done more quickly. The time required to replace a part is usually very small compared to that required to locate the failure. So most maintenance aids are direc-

"Not a man in sight..."

As I was driving along a country road with four other women as my guests a tire went flat. My heart sank with it, for my tire-changing experience was nil and the road was empty of aid. Pulling to the side, I hunted out the tools, remarking as I did so:

"Not a man in sight, of course. What we need is an angel from heaven!"

Imagine our astonishment when a cheery voice above our heads said, "I'll be down in a minute, lady." Unknowingly, I had stopped beside a telephone pole at the top of which sat our "angel"—a line repairman.

From the Reader's Digest feature, Life in These United States... "true stories showing appealing or humorous sidelights on the American scene."



A Friend in Need

We got a chuckle out of that little story and we hope you did too. Best thing about it is that it isn't an isolated case.

Many a time each day, telephone men and women go out of their way to help someone in trouble. Their friendly, neighborly spirit is one of the nice things about telephone service.

BELL TELEPHONE SYSTEM



ted at finding which component has failed. Pilot lights quickly indicate what part of a machine has failed to operate, which fixture has failed to operate, which head has failed to run, etc.

Perhaps a head fails to feed, a pilot light indicates the fixture has not clamped, and another indicates that the part is not properly positioned for clamping. So by proper use of pilot lights, the spe-

cific part of a machine that is the basic cause of failure can be determined quickly.

Another aid to quick maintenance is to arrange the control into various groups to control various machine functions. For example, each head and its fixture can be controlled from a separate panel and shuttling, and work-handling units from another panel. The last panel then also can serve for

whatever interlocking is required between working stations. Then each panel is designated by a letter and all machine components connected to that panel are designed by the same letter. Then if a particular head fails, the maintenance men take wiring diagram D (for example) and is concerned with limit switches or solenoid valves marked "D" and panel D.

Aids to preventive maintenance are ground indicator lights. A single ground on a control circuit does not cause trouble and is not usually detected. However, a second ground then will short out some contacts and will cause trouble. So a light which indicates the presence of the first one will allow it to be cleared before a second one can cause trouble.

Flexible Control

On a single machine all push buttons are usually mounted at one point. The operator then uses one button to start the motors and another one to start each cycle. Then each part of the machine can be operated individually for setup.

When a number of machines are put together to form a line of self-loading machines with only one or no operators, the push-button aspect of control becomes different. The machines may be arranged to work in several groups so that one group if down may be passed. This may require units between the groups which may direct the work to another conveyor. It also requires that each group be capable of operating either alone or with the next group. Then the control for each group must be completely separate from the others.

If there are loading units between groups of machines, they must be run from a separate individual control which may be switched to operate with either group.

Each group then must be set up on the principle of a machine loading and cycling only if its unload station is empty and its load station is full. This principle can be applied to any number of machines in a line. To keep the control separated two limit switches may be used in a station

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between two machines; one connected to the first machine to prevent its shuttling if the station is loaded and the other connected to the second machine indicating when the part is ready to be loaded.

The operator then must be able to run all or any group of machines he desires in either manual or completely automatic control. Here machine design can greatly assist the flexibility of control. This can be done if two adjacent groups of machines are designed so that their mechanical work-handling mechanisms cannot possibly interfere. This will allow each to run completely independent of the other.

The manner in which the operator controls this line may vary considerably with the specific machine. However, in general a simple and safe method is to segregate the push-button control for each group of machines or work-handling devices common to machines. Then the operator by selector switches at each part of the line chooses how it is to run—automatic or manual, whether a part is to be indexed or fed through, etc. These choices then are indicated by lights at the front of the line where he is normally stationed.

For safety purposes, it is better for the operator to start motors in groups at each group of machines rather than starting them all from the front of the line. Then he must start all the automatic cycles, after which the machines run as work is removed and loaded.

Flexibility of control is important when the operator switches over to manual control for tool changing or due to trouble. However, flexibility and safety sometimes are not compatible. Flexibility may require a shuttle to be operated several times without machining of the parts between shuttling. This then could result in a second operation being done on the part when the operator went back to automatic cycle without the first being done. Best results are obtained usually by sacrificing flexibility of control and maintaining the same interlocking in manual as in automatic control.

—Next page



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but will she make it?

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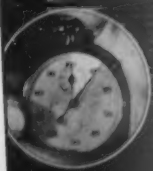
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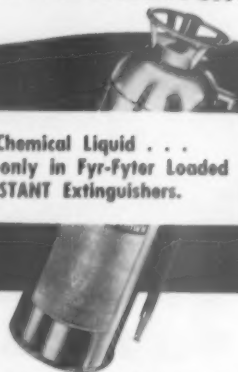


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Hydraulic Controls

Hydraulic-circuit design has undergone considerable change during the evolution of automation. Today the designer must consider hydraulic installations with a new set of standards in mind.

To the uninitiated, the most apparent change is in appearance. A manufacturer, in a competitive high-production industry, is less interested in a machine that is a thing of beauty, than in one that will give trouble-free operation at minimum maintenance cost.

With this thought in mind, let us consider the physical arrangement of the hydraulic power units about the machine. The pump, operating valves, and oil pumps are no longer hidden in inaccessible places inside the machine making maintenance difficult and affecting the machine's accuracy due to the heating of the hydraulic oil.

It is an accepted practice now to mount the pump and operating valves on an individual reservoir, separate from the machine and driven by its own electric motor. On a multistation machine, these individual units are placed in line along one side of the machine or placed on a catwalk above the machine in close proximity to the electrical panels. The oil-level gage and pressure gage indicating filter condition face outward so the oiler can check at a glance while walking past the units. Gasket-mounted valves can be replaced in a matter of minutes without disturbing piping. Gage ports throughout the circuit allow circuit trouble-shooting with a minimum of effort.

The onset of automation also has produced marked changes in circuit design. The necessity of complete electrical interlocking to insure proper sequencing of related movements has practically eliminated the pilot-operated circuit. The use of sequence valves to pressure sequence a series of operation has been replaced with electrically controlled directional valves to isolate the control of each motion.

The problem now presented to the machine tool-circuit designer is not to work out a circuit that

utilizes a minimum of components and controls but to offer a flexible, completely reliable circuit that will fail safe on any conceivable control or power failure. The hydraulic circuit designed on these principles could be termed a "straightforward" circuit, that is, one simple in operation, utilizing standard components and most important, one that can be understood readily by the maintenance men.

Many technical improvements in hydraulic components have been and are being made to meet the demands of fully automatic production machinery. Gasket-mounted control valves and cartridge-type pumps are used almost exclusively. Micronic oil filters with pressure gages to indicate the condition of the filtering element now guard the oil supply to insure trouble-free performance.

Hydraulic cylinders formerly were subject to excessive maintenance due to mechanical failure and seal leaks. Today there are available well-designed units that give excellent service under extreme service conditions. The self-regulating, tamper-proof seals are wear compensating and precision engineered to give years of leak-proof, highly efficient service with minimum maintenance required.

Much has been done to answer the familiar objection to hydraulics, the common old garden variety of leaks. It was expected that dry seal pipe threads would be the answer, but it left much to be desired. Work is being done now on pipe threads using dissimilar male and female taper, and the experimental results look promising. By using steel tubing, modern tube fittings and a leak-proof thread, the objectionable leak will be a thing of the past.

It would be very beneficial to the user if suppliers of hydraulic components would standardize mounting dimension. This would facilitate quick replacements with stock units regardless of make.

If you want to stay young, associate with young people. If you want to get old in a hurry, try to keep up with them.

National Safety News, May, 1955

**Don't Slip up
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Serious slipping accidents can happen anywhere—on stairs, walkways, ramps, loading platforms, washrooms, machine areas, etc. Low-cost Ferrox provides safe footing on all walking surfaces, wet or dry. It can be trowelled over wood, concrete or metal ... sticks tight ... resists oil, chemicals and weather conditions. One gallon covers approximately 40 sq. feet.

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The pressman knows that his footing is safe... when he works in the pressroom of one of the great printing plants which have learned the value of ALGRIP... the only abrasive rolled steel floor plate in the world.

He may not even know, offhand, the trade name of the flooring underfoot... but the man who works on ALGRIP flooring, walkways and crossovers knows that he won't slip. The depth-controlled ALGRIP abrasive sees to that.

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Reader's Point of View

—From page 10

factor in computing uninsured or indirect injury costs.

I have found that the formula of "Indirect costs equal four times the direct cost" to be conservative and I cannot agree that it should be: "Indirect costs equal one-fourth the direct costs." My analyses and reports on these losses have been reviewed carefully by the management personnel of this and other companies where I have been engaged in safety work and in all instances have been accepted.

I would be interested in seeing Mr. Simonds' views on the above.

D. F. WILLIAMS
Service Dept. Director
International Latex Corp.

From London

LONDON, ENGLAND.—At a recent meeting of the London Group Engineering Section, Accident Prevention Council, a copy of the current NATIONAL SAFETY NEWS was shown to me by a visiting member of the United States Army. One article featuring scaffolding was of particular interest to me and I wonder if I could have a copy of this edition.

I am pleased to enclose a brochure on the subject of Home and Industrial Safety which may be of interest, particularly so as this is the first of its kind to be published in this country.

Would you please let me know the cost of a regular subscription to NATIONAL SAFETY NEWS?

JAMES PYLE, Director
Sky Press Ltd.

A copy of the March issue has been sent. And thanks for the interesting booklet.

Upside Down

SHEFFIELD, ALA.—We want to be safe, so just for the "right or wrong file," I would appreciate very much to know if the picture on page 204, March issue, was upside down?

CURTIS CLENDENON
Maintenance Supervisor
Electro Metallurgical Co.

You're right; the picture was wrong side up. But don't ask us how it happened.

Flameproofing Fabrics Brings New Hazards

To comply with a federal law passed last year which prohibits interstate commerce of highly flammable wearing apparel and fabrics, manufacturers are impregnating textiles with fire retardants that are in turn providing a hazard to workers handling them, according to Irving Ettinger and Martin Jeremias, two chemical engineers of the Division of Industrial Hygiene, New York State Department of Labor, who have made an extensive research of the problem.

Result of their research was disclosed in a paper read before the American Conference of Governmental Industrial Hygienists at the recent Industrial Health Conference at Buffalo.

Among the fabrics requiring flameproofing treatment, the paper stated, sheer nylon and nylon nettings assumed unusual importance due to the increase in the use of these fabrics for party dresses, veils and petticoats. A survey of mills in the New York area showed that the main flameproofing agent for nylon was urea-formaldehyde. Some formulations included melamine-formaldehyde and a sulfur compound.

Investigation disclosed that the proper impregnating process is not followed in any of the mills. No attempt is made to squeeze out excess unpolymerized resin which breaks down to irritating formaldehyde gas. The researchers point out that the fabric is loaded with as much resin as possible to lend it greater stiffness which gives petticoats the bouffant effect required by present styles. Generally, the net is rolled and shipped without benefit of afterwash or other treatment. During storage some of the uncured resins turn into formaldehyde gas and workers unrolling the cloth become exposed to the gas, causing eye, nose, and throat irritation. In addition, the fabric is so loaded with the resin that during handling flaking occurs, the flakes entering the worker's eyes.

For several reasons mill owners objected to the removal of unpolymerized resin. Reasons were

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Now, there's dependable fire control for your plant — real protection for production and profits — in the complete new line of John Bean Industrial Fire-Fighters. Both stationary and miniature mobile models use the same John Bean High-Pressure Fog Pump design "one-man" hose lines and patented Fog Guns as the full-size municipal fire-trucks.

Only John Bean High-Pressure Fog, delivered at 600 pounds (or more) nozzle pressure, has such fast triple action — it cools, it smothers, it isolates flames in seconds — makes one gallon of water do the work of ten. Fires in oil, gasoline, lacquers, solvents — in any flammable liquid or material (except magnesium) — are all controlled with amazing speed.

Not only are fires stopped before they become disasters, but the usual losses from putting them out are eliminated or minimized. Because true high-pressure fog makes one gallon of water do the work of ten, you reduce water damage and save down-time on machines and production lines.

The full story is worth your investigation. Write today for your copy of the new John Bean Industrial Fire-Fighter Catalog.

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Accoloy X-Weld 125 Chains hang straight as a die. Every link is perfectly formed!

Accoloy X-Weld 125 Chain has almost countless uses: Slings, bundling, towing, general utility chains . . . It can be furnished in special analyses and heat treatments to provide greatly extended life and use on **tough jobs . . . corrosive jobs . . . abrasive jobs . . . hot jobs.** Specify

Accoloy X-Weld 125 for your next chain job for a new concept of chain performance, economy and value. Available in $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and $\frac{1}{2}$ " sizes.

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that the added cost could not be absorbed, that nylon could not stand the added handling, that the mills have not the necessary equipment and are reluctant to invest in it and, finally, that the removal of the surface resins would reduce the stiffness of the net. These objections had to be conceded and the more basic approach, the improvement of the raw material used in flameproofing, was sought.

Mill owners have been encouraged to lend their pressure upon resin manufacturers to improve their product. From observation it appears that there has been considerable progress in the last few months and that the industry has succeeded to a large extent in improving its products so that flameproofing materials no longer present the hazard to workers they did only a few months ago.

Baking Industry

—From page 35

which he was injured. These terminologies are important and the rules likewise must be adhered to if we are to have authentic comparisons.

Accident costs are much more difficult to obtain, since they should include both direct and indirect expense. We are often misled by simply taking the direct costs, which are those covered by Workmen's Compensation. The indirect costs, not covered by insurance, are quite frequently the larger.

A study completed by the Workmen's Compensation Board of the State of New York, covering compensation cases closed in 1948, reveal that more workers in bakeries are involved in compensable cases than in any other major division of the food industry. They found that 1,550 cases comprised one-fourth of all compensable food industry cases. Small bakeries, with baking facilities on the premises, selling at neighborhood stores are not included in this study.

The study shows that the average cost of these cases was \$504, and that bakeries lead the food industry in the total amount of compensation awards. This study

discloses that a wide variety of accidents happen in bakeries and that they involve 32.6 per cent of all workers over 50 years of age.

Injuries to 585, or 38 per cent of the bakery workers, were in some manner connected with the handling, or mishandling, of miscellaneous objects. This would indicate a need for training in proper handling which has been effectively introduced in many other industries.

The next leading cause of accidents was working surfaces. This caused 295, or 19 per cent of the bakery accidents in compensation cases.

Accidents caused by vehicles numbered 281, or 18 per cent among bakery workers, a higher percentage than similar accidents in any other food industry. These are a few of the statistics that point directly to the sources of accidents, and where we can initiate training to reduce them.

Some of the specific average costs per case or type of accident in the industry show that the average cost of slips was \$470; falls \$610; caught in-on-or between \$670; and unclassified accidents \$1,598. These are a few instances of the exorbitant costs of compensation benefits alone, which do not include medical or hospital expenses, or the indirect costs.

These are the same dollars that we utilize to operate plants, buy equipment, advertising, and to pay salaries. There is no easier way to increase our profit picture than by eradicating accidents and their attendant costs.

The social effects of accidents have an even greater impact than the economic side, for they involve the human factor. Their consequences embody some of the principles that we as Americans have cherished since this nation was founded. Pursuit of happiness can be greatly affected by crippling injuries. The thousands of accident victims are an ever increasing burden to society, and to state and federal government. Like the eradication of infectious diseases, the prevention of accidents must begin at their sources.

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You get surer fire protection from Buffalo better-built extinguishers because there's more protection built-in! Highest engineering standards, exacting manufacture and precision inspection produce the finest extinguishers possible. Dealing with your Buffalo industrial distributor has many advantages. He carries a complete line of Buffalo better-built portable extinguishers, parts and recharges. Simply call him, one transaction will answer your fire protection needs in a hurry. Call him now! He is listed in the yellow pages of your telephone directory!

**WRITE TODAY FOR THIS COMPLETE
POCKET GUIDE TO FIRE PROTECTION!**



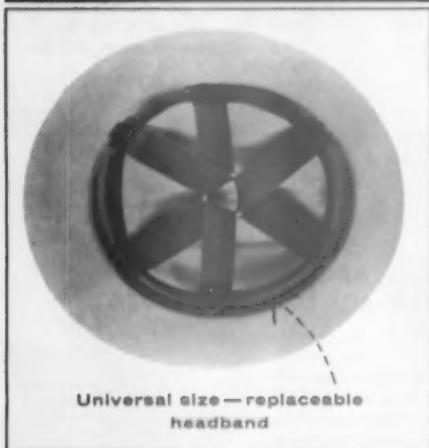
SINCE 1895 . . .
BUFFALO FIRE APPLIANCE
CORPORATION
DAYTON 1, OHIO



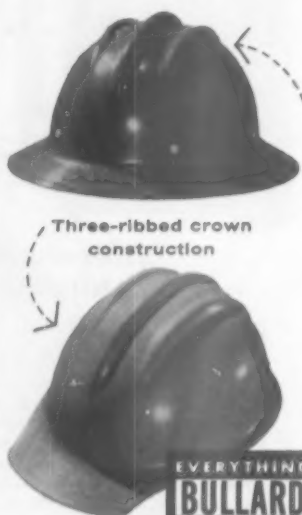
PROVEN BY THE REBOUND!

These Bullard engineering and sales research men are studying not only the impact, but also the rebound of this eight pound ball. Rebound action is the extra safety margin in Bullard safety hats and caps. Their scientifically designed three-ribbed crown not only resists impact but deflects heavy falling objects. This is one of the reasons why Bullard fiber glass hats and caps surpass all necessary industrial tests.

Greater protection plus style, comfort and color make Bullard head protection the best and longest lasting buy in safety hats and caps. Chin straps, winterliners and face shields are available for all styles of Bullard safety hats and caps.



Choice of permanent molded-in colors to identify company or trade. Aluminum hats and caps available also in variety of colors.



BULLARD

E. D. Bullard Company, 275 Eighth St., San Francisco



ness has been due in many respects not only to raising the standard of living and the means for the worker to earn it, but an interest in his well being, his health and his happiness, his problems and his desires—both on and off the job. The goodwill that emanates from this kind of association is indeed the foundation for sound labor-management relations. There is no question about organized labor's concern for the health and happiness of their members, and they are as concerned with accident prevention as with other benefits.

Through safety programs carefully planned and administered, management can gain the respect of labor. They can serve as a foundation for building attitudes which are necessary for the efficiency of any operation. When management, through a supervisory staff closely associated with workers, exemplifies interest in workers through protecting them, workers in turn are receptive to cooperating in other types of management goals.

Success in preventing accidents has been noteworthy in American business and it has been primarily management's accomplishment. The survival of many a company can be traced to effective loss control, if we would use as a yardstick the business failures following severe losses.

With today's heavy loss settlements and award suits it is conceivable how a small company might well face bankruptcy. Because of the many small bakery operators this problem becomes one of vital importance, for it may mean survival or termination of operations.

Wire from Washington

—From page 14

Drug Administration by some \$384,000 "solely for activities aimed at protecting the American people from products that are filthy or endanger health" and for one other designated purpose. The Senate must still act on the appropriation. H.R. 5036 (Priest) and H.R. 5094 (Hale) would amend the Food, Drug and Cosmetic Act with respect to new cosmetic ingredients.

S. 1455 (Magnuson) and H.R. 5222 (Klein) seek to amend the Flammable Fabrics Act so as to exempt plain surface scarves which do not present an unusual hazard; these bills were sponsored by the Department of Commerce.

H.R. 5091 (Fino) would require that cigarettes be packaged and marked so as to show the nicotine content of each package.

Marine Safety. S. 460 (Magnuson) was reported favorably by the Senate Committee on Interstate and Foreign Commerce. This bill, and the similar H.R. 4653 (Bonner), were introduced at the request of the Treasury Department, to require river steam vessels to have approved life preservers for each person allowed to be carried, including crew.

Hearings have been held on S. 743 (Magnuson), which provides for biennial inspection of hulls and boilers of cargo vessels; a similar bill in the House is H.R. 4651 (Bonner). Hearings were also held on H.R. 4090 (McCormack) concerning radio-call selectors for cargo vessels.

Aviation Safety. The CAB held a public discussion of various portions of proposed changes in the Civil Air Regulations concerning the elimination of the annual inspection of general aircraft.

S. 1119 (Magnuson) proposes extensive amendments to the Civil Aeronautics Act of 1938, including some of its safety provisions.

Farm Safety. The President proclaimed the week beginning July 23, 1955 as National Farm Safety Week.

Government Operations. S. 1309 (Smith and Saltonstall) seeks to decrease accidents in government activities by making each government agency responsible, in its budget, for the cost of payments to injured employees or their survivors. Under present law, the Bureau of Employees Compensation in the Labor Department makes payments. The basic purpose of the bill is to encourage the various government agencies to initiate safety programs.



**REDUCE
THIS
DANGER ZONE!**

You can reduce this danger zone under any hoist, crane, or other lifting equipment with Bullard-Burnham safety hooks. A pushbutton safety gate makes it impossible for loads to jar loose until the hook is manually unlocked, and also acts as a constant safety gauge indicating whether or not the hook is sprung. Notice that the safety gate leaves the hook's throat 100% clear. The heavy duty safety gate is non-corrosive brass with a stainless steel lock pin that will last for years.

E. D. Bullard Company, 275 Eighth St., San Francisco



Hook
on load block

Hook with jaw
and jaw-type ball
for link chain

Hook with
adapter nut for all
types of pullers



Write for complete data and specifications

BULLARD

A hand for every JOMAC



A JOMAC for every hand

The features you want in a work glove—protection, safety, durability, full finger control, lower cost—are the very factors that govern the design of Jomac® Work Gloves. Describe your plant operations, temperature conditions, etc., and we'll gladly recommend an economical Jomac for the job, and send you a free sample pair. Jomac Inc., Department D, Philadelphia 38, Pa.



Jomac Hand Guards can be worn over gloves, if desired, to provide extra protection against abrasion, sharp edges, or heavy blows. Available rubber-lined to protect from grease or oil. They can be reconditioned repeatedly.

It pays to keep JOMACS on hand

JOMAC

Industrial Work Gloves

Outwear ordinary work gloves by 900%

PLANTS IN PHILADELPHIA, PA., AND WARSAW, IND.

First Aid

—From page 33

Much controversy about equipping the first aid kit with such a snake bite kit is voiced by many, on the grounds that the danger is either non-existent or extremely remote. However, if the danger is there, some precautionary measures, including a snake bite kit, should be provided. Frequency rates are very low, but why increase the fatality rate by not having adequate equipment ready for treatment?

About the most common type of injury occurring in all types of industry and all locations is burns. In most cases where burns are limited in scope, effective first aid treatment can be given by manual application of an approved first aid medication.

However, where burns are likely to be severe and widespread, burn first aid facilities must be fast, dependable and effective. The prime duties when giving burn first aid are to relieve pain, prevent shock and prevent infection. All these things must be accomplished in a minimum amount of time to limit the severity of successive complications. In treating burns care should be taken that injured areas are not touched by the hand.

The type of treatment to be used for all burns should be prescribed by the medical director of the company. The proper first aid treatment will save him valuable time and prevent unnecessary pain and succeeding complications to the patient. There are complete burn spray first aid kits available combining spray applications, materials for limited manual application, as well as bandages and other items for first aid treatment at the scene.

Needless to say, no first aid equipment will give complete satisfaction unless used by properly trained persons. The most critical time is directly following the injury due to the bleeding, shock and other complications. The importance of swift action is verified in a part of the definition of first aid: "Temporary aid and comfort given to the patient to

avert further complications in an emergency until professional medical attention can be obtained."

Every work group, regardless of size, should have the services of one or more persons skilled in first aid. Experience of many industries shows that the injury frequency declines in direct proportion to the number of workers trained in first aid techniques. Thorough training and first aid knowledge create safety minded employees who instinctively avoid unnecessary hazards. In nearly every community there are agencies which can assist in training workers in first aid.

Green Cross News

—From page 10

Glass Works, was elected president, succeeding Harold S. Stanzler. Nineteen Pawtucket and Blackstone Valley plants received trophies and other awards for outstanding safety records last year.

Manager John Booth reports an enthusiastic crowd of 150 industrial leaders, supervisors and safety directors attended the dinner.

Stockton Contest Grows

A healthy and encouraging increase in the number of plants in the San Joaquin County Safety Council's Inter-Plant contest (Calif.), brings the total up to 82 participating companies in the current competition. There are now eleven divisions, including canneries, dairy and bottling, wineries, wood and paper products, metal fabricators, ceramics, petroleum distributing, public utilities and governmental agencies and miscellaneous, the last two classifications having two divisions each.

Farm Tractor Safety

Approximately 2,000 High school students and representatives of various 4-H Clubs, farm bureaus and other agricultural organizations of Fresno County and five other nearby counties in Southern California, witnessed a spectacular farm tractor safety demonstration in Fresno on March 10. The Davis branch of the University of California, in cooperation with the Fresno County Safety Council,

"AKBAR"



The Kinnear Steel Rolling Fire Door with

EXTRA SAFETY Features



Akbar Fire Doors — another famous Kinnear product — combine quick, positive, automatic fire protection with features that provide maximum safety.

When fire threatens, the doors are automatically pushed downward by a strong starting spring . . . yet their downward speed is controlled, for the safety of anyone passing through the opening at the time of emergency release.

As another safety measure, Akbar Doors feature *separate* counterbalance and starting springs. For emergency exit, the doors can be opened *after* automatic closure.

Another Kinnear device stops the door at sill level *even if the sill is burned away*. This assures maximum closure of the doorway area, even under adverse conditions.

When not in use, Akbar Doors remain coiled overhead, out of the way. Approved and labeled by Underwriters' Laboratories, Inc., they



have saved as much as one third of their cost *per year* in reduced insurance rates. They are built any size, to fit each specific opening — for either old or new buildings.

Akbar Doors can also be used for regular daily service, with Kinnear Motor Operators for electric push-button control if desired. Where maximum fire protection is not essential, *nonlabeled* Kinnear Steel Rolling Doors are recommended. Write today for catalog or specific information.

The KINNEAR Mfg. Co.

FACTORIES

1720-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities



THE LATEST NEWS about ATHLETE'S FOOT

The American Public Health Association released a report on October 15, 1954, of great importance to all those faced with the practical problem of preventing Athlete's Foot. The report gives new proof this disease is caused primarily by a lowered resistance of the skin.

That means the best way to prevent Athlete's Foot—as the report points out—is to increase the resistance of the skin to fungus attack.

ÖNOX SKIN-TOUGHENER does that. Önox is a concentrated solution of five mineral salts that toughens the shoe-softened skin and restores its natural resistance to fungus growth.

Today, over 70% of the largest manufacturers in the United States use ÖNOX SKIN-TOUGHENER in one or more of their plants.

For further information and trial offer, write:

ÖNOX, INC. 129 SECOND STREET
SAN FRANCISCO 5, CALIF.

• WAREHOUSES •
BROOKLYN • CLEVELAND • NEW ORLEANS • HAWTHORNE, CALIF.

sponsored the project, held at Selma High School athletic field.

The University developed the program, and planned it to demonstrate some of the common mistakes that all too often lead to disaster, such as an improper connection of the drawbar, causing a tipover; operating at too great a speed when turning, causing side-tipping; danger of backward flip when trying to drive out of mud holes; and the unguarded power take-off, which may catch the operator's clothes in the universal joint. The interesting demonstration was directed by Norval MacDonald, chairman of the Farm Safety Committee of the safety council.

Dayton Staff Enlarged

Clarence Baxter, formerly with Otterbein Press, Dayton, O., has been employed to fill the newly created post of assistant manager of the Safety Council of the Dayton Chamber of Commerce. He is experienced in promotional and organizational work and should be a valuable asset in Dayton's community safety program. Baxter is a graduate of the University of Michigan. He is 29 years of age and is married.

Green Cross Reporter

An attractive monthly publication recently made its bow in Oakland, Calif., the first issue of the *Green Cross Reporter*. The four-page printed periodical records the interesting programs, progress and plans of the Eastbay Chapter. It is well illustrated with half-tone cuts, cartoons and charts. Roger W. Kaufman, the Chapter's public information director, edits this excellent publication.

Pittsburgh Conference

T. R. Donoghue, manager of safety and plant protection, Pittsburgh Plate Glass Company, served as general chairman of the 30th Annual Western Pennsylvania Safety Engineering Conference and Exhibit, held March 29, 30 and 31 at Hotel William Penn, Pittsburgh. The Conference was an outstanding success and good programs, mostly on the industrial side, were enjoyed by capacity audiences. The Exhibit, too, was larger than in previous years.

Industrial Health

—From page 60

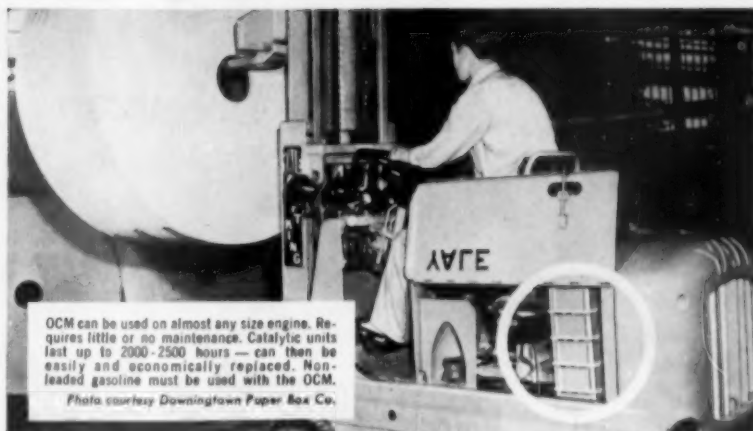
showing essentially the same type of symptoms. Calculations of the amount of DDT probably consumed in these relatively mild cases indicates the largest dose as 120 milligrams of DDT per kilogram of body weight and in one instance a 23-year-old pregnant female who ate 10 milligrams per kilogram showed no symptoms while a 20-year-old male had sweating, headache and nausea following an estimated dose of 6 milligrams per kilogram of body weight when he was ill with some infection.

There is a possibility of producing skin sensitivity to DDT but it is not a vigorous sensitizing agent and cases are very few.

In many of the reported cases of human poisoning, there is the complication of DDT with solvents and in many instances the solvent probably has as much to do with the poisoning as does the DDT.

Attempts to produce chronic DDT poisoning in animals have produced changes in the liver which are frequently reversed when the DDT feeding is discontinued. There have been no confirmed cases of chronic human DDT cases. The nearest approach is in the instances of weakness and loss of sensations in the extremities and sometimes muscle atrophy following acute poisonings and which persist for some weeks or some months.

Benzene hexachloride (BHC, hexachlorocyclohexane) has a number of isomeric forms. Four of these isomers have been investigated and vary substantially in their toxicity, in their tendency to be stored in fat and in their central nervous system effect. The gamma isomer is the most effective insecticide and also the most toxic to warm blooded animals. In fatal cases, the symptoms have been shortness of breath, vomiting, convulsions, blueness of the lips, ears and skin, and signs of heart failure. There have also been a number of reports of dermatitis from benzene hexachloride. It has, however, been used as a .05 per cent ointment in vanishing cream for the treatment of



KILLS DANGEROUS CARBON MONOXIDE FROM GASOLINE AND LP-POWERED EQUIPMENT

—Also Eliminates Hydrocarbons—

OCM CATALYTIC EXHAUST

Now you can operate lift trucks, bulk handling trucks, stationary engines — any type of gasoline- or LP gas-powered equipment — efficiently, safely, in even closely confined areas. For the OCM Catalytic Exhaust eliminates 95% or more of the deadly carbon monoxide, and 90% of the hydrocarbons, from the exhaust gases.

The OCM Catalytic Exhaust is made to replace standard engine mufflers. It's now available as optional factory-installed equipment from leading manufacturers, such as Buda, Clark, Yale & Towne, and Lincoln-Schlueter. Or it can be easily installed on present equipment by your own mechanics.

Wherever you operate gasoline- or LP gas-powered engines indoors — even part time — the OCM Catalytic Exhaust means an end to fume-caused headaches, eye irritation, and nausea. It means more efficient use of equipment, plus greater employee productivity and morale. Write now for complete information and the name of your nearest supplier.



FOR FORK TRUCKS



STATIONARY ENGINES



POWER SWEEPERS

OXY-CATALYST, INC.

WAYNE, PA., U.S.A.

MANUFACTURING • ENGINEERING • RESEARCH

Fume elimination processes and equipment for internal combustion engines — for incinerators — for consumer products — and for industrial air pollution control and heat recovery.

For Diesel Exhaust Fumes
New OCM Diesel reduces below objectionable levels harmful, irritating exhausts from any 4-cycle diesel engine when running at or over 60% load. Write for details.



OXY-CATALYST, INC., Wayne 2, Pa.

Please send complete information on

- ☐ OCM Exhaust for gasoline engines
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- ☐ Send name of nearest supplier

Name

Firm

Street

City Zone State



Inquirers in the U.S.A. or its territories, or in Canada, should write to Wayne, Pa. Inquirers elsewhere should write to Pan American Chemical Inc., 9 Rue La Pausse, Paris 16, France.

Smoking is Dangerous!
 THAT'S WHY OVER 60%
 OF THE 100 LEADING INDUSTRIES
 IN THE U.S. HAVE INSTALLED
SIPCO DUNKING STATIONS

SMOKERS
 GOOD HOUSEKEEPING
 PREVENTS FIRES
 PUT 'EM HERE

UNIT NO. 1
 (42" high)

SMOKERS
 GOOD HOUSEKEEPING
 PREVENTS FIRES
 PUT 'EM HERE

UNIT NO. 2
 (Well Model)

**Cigarettes...
 Cigars...
 Matches...**

IMMEDIATELY EXTINGUISHED!



Sparky says

It's not the cigarette or cigar that's being smoked that causes fires—it's after they're discarded and forgotten that they become a serious fire hazard! SIPCO DUNKING STATIONS end this fire hazard by immediately drowning every last dangerous spark.

Why not rid your plant of smoldering fire hazards by installing SIPCO DUNKING STATIONS. They are built for heavy industrial use and abuse — are attractive — economical — the perfect solution to your plant smoking problem.

WRITE DEPT. 5 FOR DESCRIPTIVE LITERATURE

"Sparky" reproduced through courtesy of N.F.P.A.

SIPCO

STANDARD INDUSTRIAL PRODUCTS CO.
 116 SO. GARFIELD AVE.
 PEORIA, ILLINOIS

scabies, apparently with little or no difficulty.

Chlordan is apparently absorbed from oil solutions through the intact skin. One of the two known fatal human cases was that of a young woman in a formulating plant who spilled "well over 100 millimeters of concentrate on her dress. She died within 40 minutes before receiving any medical attention." In animal experiments it produces signs of irritation of the central nervous system such as excitability, tremors and convulsions.

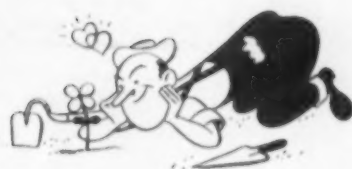
Aldrin and dieldrin are highly chlorinated naphthalenes. In animal experiments, they have been demonstrated to be stored in fat and to produce central nervous system symptoms like the others. One 23-year-old white male who drank an aldrin solution equivalent to 25.6 milligrams of aldrin per kilogram of body weight showed convulsions within a few minutes, bloody urine, and changes in the electroencephalogram which gradually cleared up in three months.

An agricultural worker who spilled a concentrate over his face, arms and legs showed headache, nausea, burning of the skin and excitement. He recovered within 48 hours.

Toxaphene is a chlorinated camphene containing 68 per cent of chlorine by weight. There have been only a few cases of human poisoning with toxaphene. They apparently follow about the same course as the other chlorinated hydrocarbon insecticides.

The only known untoward effects in workmen in the compounding of chlorinated insecticides have come from situations where the workroom atmosphere was grossly contaminated with insecticide dust or from acute cases from spills of concentrated solutions. There is a definite potential hazard in the inhalation or application to the skin of concentrated solutions of these materials, both to men and to domestic animals. It is notable that in all of the reasonably well authenticated cases the manifestations of the poisoning are acute and are sufficiently traumatic to make the diagnosis obvious and direct.

How Safe Is Your Garden?



MORE Americans are involved in accidents while seeking recreation and relaxation or working at home than are hurt during working hours. Now that the summer season is approaching, outdoor injuries can be expected to rise sharply. Even the gardener, seemingly safe in his own backyard, is facing some of the dangers of mechanization.

The phenomenal increase in the use of power lawnmowers and garden tractors around suburban homes is taking over some of the heavier work of home maintenance. But while these machines are designed to be safe in normal operation, ignorance or misuse of this equipment, can result in painful injuries.

Manufacturers of power equipment have done much to minimize possible hazards. The current trend is toward compactness, which has helped to reduce the number of drive wheels exposed. The remaining rotating surfaces are usually carefully shielded to protect unwary fingers.

This compactness, however, has resulted in the use of power equipment by women and children who have little mechanical knowledge, and in many cases, no experience with gasoline engines.

For Power Units

A set of simple safety precautions has been compiled by S. L. Allen & Co., manufacturers of the Planet Jr. line of power units, gardening and farming implements. These guides to safe gardening cover the operation of their new 1 hp tractor which uses a number of attachments such as a seeder, fertilizer distributor, plows, discs, cultivator, an earth or snow moving blade, a trailer cart, and a hitch to adapt hand lawnmowers to power operation. To protect this army of inexperienced users these rules were formulated. While drawn up pri-

marily for their own equipment, the following precautions are equally applicable to any power unit used about the home or garden:

1. Keep starter rope in good condition. A worn or frayed rope parting suddenly can inflict painful bruises or sprained tendons.
2. Be sure timing is correct. If flywheel "kicks" or reverses direction suddenly, or if unit is hard to start, have mechanic check timing.
3. Use wide mouthed funnel when filling gasoline tank. Avoid spilling gasoline over engine parts.
4. Don't fill gasoline tank while engine is hot or while engine is running.
5. Never operate engine in small garage or enclosed area.
6. Watch where you're mowing. Spoons or other metal objects left by children can be dangerous when flung by whirling blades.

General Precautions

Other general safety precautions are:

Keep implements sharp for easy working but avoid ragged edges that may inflict gashes.

Don't leave hoes, rakes, or other long-handled tools laying about in the weeds. Stepping on a rake isn't funny, even in cartoons.

Paint hand tools a highly visible color like orange or bright

yellow to protect both your tools and your family.

Wear heavy gloves when planting, handling or pruning thorny bushes such as roses and barberries.

Avoid overexertion.

Plan Safety Code

Accidents sustained in the operation of power mowers has moved the Lawn Mower Institute to request an American Standard safety code for mowers.

A general conference of representatives of safety groups, insurance companies, lawn mower manufacturers, automotive engineers and others interested voted recently to recommend initiation of a project for developing standards under the procedures of the American Standards Association.

The Lawn Mower Institute, whose membership represents about 75 per cent of the total mower manufacturers in the United States was named sponsor for the project. They will appoint a chairman to a sectional committee of technical experts representing the various groups who are interested in the project.

The committee will be concerned with safety specifications for reel and rotary lawn mowers, both hand operated and power operated.

The Lawn Mower Institute emphasized the need for an American Standard governing safety requirements which will be used voluntarily by the whole mower industry. "We recognize that the absence of a single recognized and authoritative safety standard for manufacturing design might lead to the adoption by various groups of their own standards which would be all different and which might result in an almost insurmountable manufacturing and distribution problem for the industry."



For a More Successful Poster Program



JUMBO POSTER FOR JULY 1955

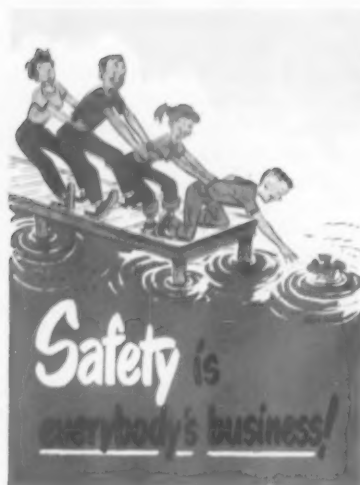
The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

SAFETY BANNER FOR JULY, 1955

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-colored design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill, with wind vents, and has strong stitched-in rope for durability.

POSTER program aids miniaturized on this and the following pages are **NEW**—shown here for the first time. Those illustrated in one color on the following two pages are actually printed in two or more colors.

For maximum variety, refer to the 1955 Directory of Occupational Safety Posters. There you'll find 744 top-notch selections on a great variety of subjects. Additional copies of the directory are 50 cents each—write Membership Service, N.S.C.



NATIONAL SAFETY COUNCIL
0293-A 8 1/2 x 11 1/2

This new four color poster is illustrative of the 72 four color posters shown in the 1955 Poster Directory.



Posters below are printed in two or more colors

(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL

0490-C 25x38



NATIONAL SAFETY COUNCIL

0456-A 8½x11½



NATIONAL SAFETY COUNCIL

0410-B 17x23



NATIONAL SAFETY COUNCIL

0454-B 17x23



NATIONAL SAFETY COUNCIL

0381-B 17x23



NATIONAL SAFETY COUNCIL

0458-A 8½x11½



NATIONAL SAFETY COUNCIL

0436-A 8½x11½



NATIONAL SAFETY COUNCIL

0251-A 8½x11½



NATIONAL SAFETY COUNCIL

0459-A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)



0433-A

8½x11½



0338-A

8½x11½



0462-B

17x23



T-0418-B

17x23



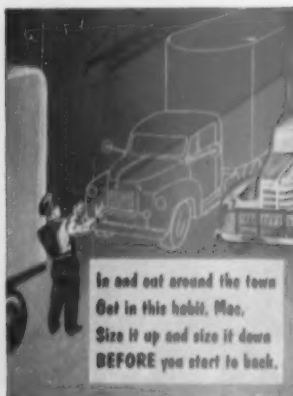
T-0412-C
T-0413-A

25x38
8½x11½



V-0448-A

8½x11½



V-0463-A

8½x11½



V-0465-A

8½x11½



V-0464-A

8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Inviting an Accident

—From page 42

sonal appearance, dirty clothing may also create a health and accident hazard. Contact with dirty clothing may cause skin irritation and dermatitis. Infectious bacteria can hitchhike right along to be on hand to complicate cuts, scratches and other minor injuries.

Where the employee furnishes his own work clothing it is difficult to exercise effective control over what he wears on the job and how often it should be cleaned or washed. However, every medium should be used to remind employees of the importance of safe, clean clothing.

Rented work uniforms enable the employer to extend control over the working environment, while promoting higher morale and better public relations, particularly important when a plant has many visitors.

Uniform rental service avoids the annoyance of workers carrying bundles in and out of the plant. This is particularly convenient in large plants where guards must inspect all packages.

Uniforms are also useful for identification in some plants. Supervisors can have distinctive garments and uniforms worn by employees in different departments can be designed for easy identification.

Work uniforms should be plain and practical, which need not make them unattractive, for reasons of both safety and long wear.

In choosing a uniform, working conditions should be considered. With garments of good design, many an accident hazard can be corrected.

Printing Presses

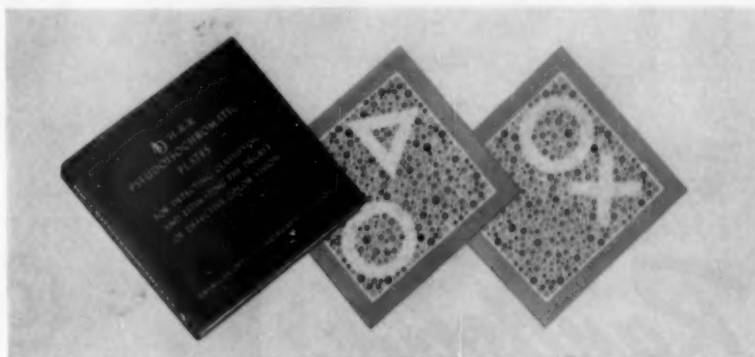
—From page 37

ers Association, American Society of Mechanical Engineers, American Society of Safety Engineers, Association of Casualty and Surety Companies, Book Manufacturers Institute, Inc., Education Council of the Graphic Arts Industry, Inc., Folding Paper Box Association of America, Gravure Technical Association, Interna-

tional Association of Electrical Inspectors, International Photo Engravers Union of North America, International Printing Pressmen & Assistants' Union of North America, International Typographic Composition Association, National Association of Mutual Casualty Companies, National Electrical Contractors Association, National Electrical Manufacturers Association, National Printing Equipment Association,

Inc., National Safety Council, Printing Industry of America, Inc., Research and Engineering Council of the Graphic Arts Industry, Inc., and the U.S. Government Printing Office.

The American Standard Safety Code for Controls and Signaling Devices for Graphic Arts Presses is available from the American Standards Association, 70 East 45 Street, New York 17, at 50 cents a copy.



Completely New

AO H-R-R COLOR BLINDNESS TEST

Most Accurate and Comprehensive Low-Cost
Test Ever Developed

The New AO Hardy-Rand-Rittler color test answers a long felt need for an easy-to-give, comprehensive, low cost color blindness test. It is the result of more than ten years of scientific investigation, production and validation by eminent optical authorities.

It offers a simple way to insure job efficiency and prevent costly errors by rapid testing of workers whose jobs demand the ability to distinguish certain colors.

The test not only detects people who have Red-Green and/or Blue-Yellow color blindness but also types the deficiency and estimates

the degree of defective color vision present.

To make color testing easy the new test has been designed for the utmost simplicity of administration. For the vast majority of people it is completed in seconds. Simple, detailed instructions and understandable scoring sheets are part of the test. The recognition symbols used . . . the circle, triangle and cross are universally understood and the ingenious pattern of the plates allows no clues for memorization.

AO branches are located in nearly 300 major cities, or write

American Optical

INSTRUMENT DIVISION
BUFFALO 15, N. Y.

Dept. Q212. Please send complete information on the H-R-R Color Test.

Name

School Title

Address

City State

**Shuts Doors, Windows, Stops Conveyors
Sounds Alarm...**

KILLS TOUGH FIRES!

Randolph EXTINGUISHING SYSTEMS

Where your fire hazards are severe and areas are large or inaccessible . . . play safe! Be ready and secure with a *fast action* Randolph Automatic Fire Extinguishing SYSTEM!

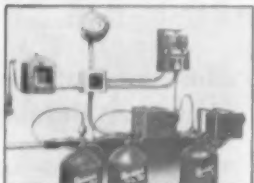
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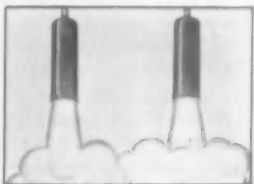
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Giant-size "CYCLONE" nozzles deliver the fire-killing punch . . . flood the entire room in 1.5 seconds!



Industry's Noise

—From page 25

the ability of the ear to recognize the speech sounds well enough to repeat them. Most pure tone audiometers test between 125 and 8000 cycles per second.

Intensity-wise, the ear is most sensitive at 1000, 2000, and 4000 and becomes less sensitive below or above these frequencies.

Measurements of hearing are referred to "average normal hearing," the so-called zero reference level; and since these measurements are expressed in terms of "decibels of hearing loss" zero would mean no loss and any increase in output necessary to reach threshold would be a hearing loss of so many decibels referred to "average normal hearing."

The decibel or "db" is a unit of measurement related to sound energy. It is based on a logarithmic scale to the base 10. This means that 20 db has 10 times the energy of 10 db, and 100 db would be equal to 10,000,000,000 (ten billion) times the energy of 1 db.

Measurement of Hearing

Like the other special senses the measurement of hearing depends upon a subjective response—that is, a voluntary response to a suitable stimulus. All presently used standard hearing tests are designed around such a method.

The choice of stimulus depends to a large extent upon the purpose of the test. In general, standard test material may be divided into pure tones and speech. A pure tone may be defined as a sound which has a specified number of cycles per second (cps) free of harmonics and overtones—for example, a tone having 1000 cps in the form of sinusoidal waves.

Such a sound may be described objectively in terms of intensity and frequency, and subjectively in terms of loudness and pitch. A difference in terms is necessary because a pure tone measured by physical means and described in physical terms does not describe the subjective experience of a lis-

tener. Such an experience can be reduced to physical terms only by a psychophysical comparison.

The pure tone has a distinct advantage over any of the presently used test signals. It lends itself to specific diagnosis because of its precise limit in the frequency scale. As has been stated previously the young normal ear can hear the frequencies between 20 and 20,000 cps. The upper frequencies gradually reduce in acuity and are finally lost so that few individuals over 50 hear any frequencies above 10,000-12,000. From a practical standpoint this is of no importance since there are few normal sounds above this point.

Because the pure tone can be completely controlled both as to frequency and intensity, it is possible to test the function of a single tiny segment of the hearing mechanism. Therefore, testing with pure tones results in a precise mapping of the function of the ear in terms of intensity and frequency. This "map" is called an audiogram.

Since the hearing mechanism has a "mechanical" and an "electrical" conduction system, it is obvious that, to make a diagnosis, we must have means of testing both parts of the auditory organ. Such is the case when air conduction and bone conduction audiograms are made.

The ordinary earphone standardized on the basis of a so-called artificial ear produces tones that are presented to the subject by way of the external ear traversing the auditory canal, middle and inner ear, and on to the brain. A defect in any of the parts shows up in a hearing loss but does not designate where this loss is.

The bone conduction audiogram is made by bringing a so-called bone oscillator in contact with the mastoid just behind the auricle. The vibrations of this oscillator are transmitted by way of the temporal bone directly to the inner ear, and any hearing loss found can be said to be directly due to a defect of the inner ear or nerve of hearing. It is now possible to determine with relative precision the site of the pathology.

—Next page



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C-38

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15 DIVISIONS FROM COAST TO COAST

During World War II communications became a paramount necessity. A war of land, sea, and air must be coordinated, and this is impossible without communication equipment. Such equipment must be tested for fidelity; therefore, intelligibility tests were produced by experts in the field of speech and hearing. During the validation of these tests it became evident that with some modifications they could be used to test auditory function in terms

of speech.

To test communication equipment and hearing in terms of speech, and remain practical, language must be reduced to a faithful sample. This sample must be in the form of usable word lists picked to satisfy the criteria of frequency, homogeneity, and familiarity.

The vowel gives sound power or loudness to speech, and the consonant, discrimination. Study has shown that the vowel pro-

duces the frequencies between 300 and 1500 cps and the consonant, 1500 to 3000 cps. It is obvious, then, that two lists are necessary. One must be weighted with vowel sounds and the other with consonant sounds.

The words presently used are known as the spondee and phonetically balanced word lists. Examples of the spondees are words like "baseball, cowboy, and black-out." They are bisyllabic with equal emphasis on each syllable, hence the name spondee. The phonetically balanced words are single syllable words such as "hive, clear, rise, plush, and rub."

These lists have recently been revised and recorded for equal intelligibility. There are 36 spondees and four lists of 50 PB's. Each list has been scrambled, producing six recordings, thus eliminating the learning factor in cases where repeated tests are necessary. The spondees are used to obtain what is now known as a "speech reception threshold," or the ability of the ear to hear and repeat, but not necessarily define, the important speech sounds.

By this test we are able to determine how much intensity or sound pressure is necessary before language is just heard. The speech reception threshold is the intensity at which approximately 50 per cent of the spondee words are repeated.

The PB's or phonetically balanced words are used to determine how well the ear can discriminate the vowels and consonants of speech. Since the ear does not ordinarily function at threshold, discrimination tests are made at above-threshold levels routinely at 35 db above the previously determined speech reception threshold as obtained by the spondees. This procedure determines the articulation score or the ability of the tested ear to discriminate English speech sounds.

With these two word lists we are armed with a very useful tool which tests auditory acuity in two dimensions. The use of speech tests has not been generally accepted as yet, partly because practical and adequate equipment

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is not generally available, and partly because the test material has not been completely standardized.

Let us now examine the instruments for auditory tests. For many years the doctor resorted to conversational voice, whispered voice, coin clicks, watch ticks, and finally tuning forks. Then about 20 years ago the vacuum tube made possible a well-controlled source of pure tone powered by an electrical current. This instrument soon became known as a discrete frequency pure-tone audiometer, or an instrument to measure hearing.



"Joe, get an extinguisher! Bill, call Fire Control! I'll think up an alibi for the boss."

Testing auditory acuity with speech requires special equipment—a microphone with a preamplifier for input power, a monitor meter to regulate the input, and attenuator to control the output, and a speaker or earphones with an output amplifier. Such a system is used when speech testing is done with live voice.

A similar setup can be used where the microphone is replaced by a recorded test, either disc or tape. When a recorded source is used, the test is accompanied by a calibrating tone, usually a 1000 cps note. This tone is used to calibrate the system by setting the gain to zero on the monitor meter when the tone is reproduced over the system.

The recorded speech test is much more exact than live voice but is not quite as flexible. The one real disadvantage of recorded speech tests has been the recording process itself. Most recordings have considerable background noise from record scratch. Im-

proved techniques are reducing this. Using magnetic tape almost completely eliminates background noise but at present good tape machines are too expensive for general use.

Environment

To test and retest hearing with any consistency, some sort of standard testing conditions are required. Such a requirement is very important since extraneous

sounds have a masking effect on the ear and the test is therefore inaccurate.

The ideal environment is, of course, a soundproof room, which is hardly practical in most cases. Usually one must agree to some sort of compromise. Before such a compromise is made, though, certain criteria should be considered.

First, just how much ambient

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5 GALLON

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noise is permissible? This question has been studied quite adequately, and we know that if the ambient noise is kept below 40 db there is little or no masking effect on the hearing.

Second, what is the purpose of the test? For example, if we are testing at above threshold levels such as is done in screening type tests, there is no need for the careful control of ambient noise that is necessary when testing at threshold in normal hearing individuals.

Third, just how much ambient noise is present in the area where the testing is to be done? If the general area is quiet and there are no peaks, few precautions are necessary.

Test rooms. Here are some practical suggestions:

1. Pick a location which has as little noise to protect against as possible. Stay away from outside walls, elevators, much-used halls and waiting rooms; use top floors or basements if possible.

2. Remember, there are two sources of ambient noise in a sound-treated room—that which is transmitted through the walls, ceiling, and floor, and that which is built up within the room because of a long reverberation time.

3. In general it takes mass to prevent transmission of sound through the room structure and rough irregular inside surfaces to reduce reverberation time.

4. Reduction of internal noise caused by reverberation is relatively easy. This needs only the application of a material with a relatively high absorption coefficient.

The use of mass to reduce transmission of sound is many times impossible because of weight limitations. In such a case a room-within-a-room technique must be employed, using as much mass as the situation will allow in the walls of each room. These walls should have no connections with each other, if possible.

The outside cubicle should be isolated from the main building floor by cork, soft rubber, or inflated bicycle inner tubes. The latter is simple and most effective. Inside measurements should not be less than 8x8x7 since the only practical means of ventilation is a fan turned on and off as the door is opened and closed. If good, quiet ventilation is provided or if the subject only is in-

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side the room, smaller rooms can be used efficiently.

Industrial Testing

In general, hearing tests have been divided into diagnostic and screening tests. I would like to add another category—industrial. The type of information needed for industrial purposes is rather special and does not fit into either of the previously mentioned classes.

The industrial test is used for two purposes: (1) To establish a base line preplacement hearing status for follow-up and compensation purposes, and (2) to furnish data for research.

The test best suited to satisfy these criteria is the air conduction threshold audiogram measured at the following frequencies: 500, 1000, 2000, 3000, 4000, and 6000. Frequencies below or above these add nothing to the information needed by industry. On the basis of this, any screening type audiometer accepted by the AMA is adequate for industrial type testing.

In my opinion, industrial testing should not include tests which are diagnostic in nature. If a diagnostic test is necessary, it should be relegated to the medical department for completion and evaluation.

Screening tests usually refer to testing at a previously specified sound pressure level; for example, 10, 15, or 20 db above average normal hearing. Those who pass are said to have hearing within normal limits. Any failures are then tested by threshold audiometry to determine the exact amount of hearing loss.

Such tests do not serve as good preplacement audiograms. For example, if a young individual is tested at a sound pressure level of 10-15 db above average normal hearing, the chances are he has a hearing threshold of minus 10; this is 10 db better than average normal hearing and 20-25 db better than the screening level. If this man were placed in a damage risk area he would lose 25 db of hearing before any changes would be noted on his record.

Screening does have a place in industry. If an industry wishes to

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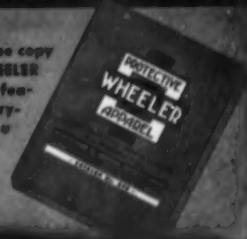
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survey an entire plant population economically, group screening methods could be employed where 100-150 men an hour can be tested to select those individuals who have hearing within normal limits and those who do not. Such testing does not apply to a pre-placement testing program unless the number hired is so large as to make it impractical to do individual air conduction threshold audiograms.

Bio-acoustic effects of noise.

Much has been said and written concerning the effect of noise on the behavior of man. Some of these effects include nervousness, fatigue, inefficiency, sterility, and even death. In no case, however, is there any evidence to support any of these claims.

The two important effects that can be supported with overwhelming evidence are interference with speech communication and the production of a hearing loss.

One merely needs to try to talk to his fellow worker in the presence of more than 90 db of noise to know the effect produced on communication. This phenomenon has been quite thoroughly studied and one can predict what the intelligibility of speech will be in the presence of specified amounts of noise.

Demonstrating the effect on hearing is readily shown by the production of a so-called "temporary threshold shift" of hearing. After exposing the ear to sounds above 110 db or so for a few minutes, audiometry will show a temporary hearing loss and after sufficient exposure time this temporary loss may become permanent.

Noise induced hearing loss is an irreversible nerve type loss. No known therapy will reverse the process. Such individuals have only auditory rehabilitation to turn to. Even this is difficult because the loss produced does not lend itself well to the use of a hearing aid, although with training and experience good results may eventually be obtained.

There are many questions left unanswered. Some of them are:

1. How much noise is necessary?

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2. What frequencies are most important?
3. What is the effect of individual susceptibility on the over-all problem?
4. How can we predetermine who is more susceptible?
5. How much exposure time is necessary?
6. When can the hearing loss be said to be permanent?
7. Is such a hearing loss progressive after removal from the noisy environment?

Hearing conservation. Only when all these questions and many others are answered can industry set up properly controlled hearing conservation programs. Until these answers are obtained industry must proceed along these lines:

1. All routine preplacement physical examinations must include air conduction threshold audiometry.
2. All individuals working in noisy areas suspected of having produced a hearing loss, whether temporary or permanent, should be followed with hearing checks every 6-12 months.
3. All suspected areas should be studied for possible noise reduction procedures.
4. Educational programs regarding ear protectors must be instituted.

Preplacement audiograms are necessary to protect both the employer and the employee. They establish the individual hearing baseline for future reference purposes—for example, to follow changes in hearing produced by the environment, and to establish any preplacement hearing loss. Incomplete surveys have shown that about 25 per cent of applicants have a significant hearing loss.

Reduction of noise at the source should be attempted in all noisy areas. Such reduction can be done by enclosures, sound treating with absorbing material, or changes in machine design or mounting of both.

Ear protectors are a must in noisy areas. There are several presently available which are adequate for ordinary industrial noises. It should be the business of every hygienist and safety engineer to propagandize the use of ear protectors. The best ear protector is one that is worn. Further research will probably produce more effective and more comfortable ear plugs. In the meantime every effort should be

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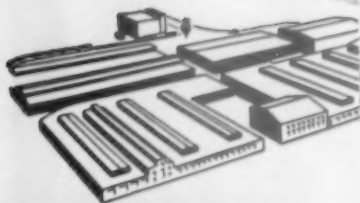
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made to conserve hearing by example, education, and regulation.

Many are against ear plugs because, they claim, when ear plugs are worn communication by spoken voice is impossible and warning signals are not heard. This assumption is fallacious. As a matter of fact, communication in noise is improved when ear plugs are worn. This is easy to demonstrate. Merely put your fingers in your ears while conversing in a noisy area; you will immediately notice that conversation can be heard much more easily.

Audiometric technicians. Because industrial hearing testing needs only air-conditioned threshold audiometry, the technician needs only a short intensive course in the operation of the audiometer. The industrial technician should not be required to do diagnostic audiometry and therefore does not need the type of training necessary to do this type of measurement.

Any one in the medical department can be trained to do adequate tests. He or she need not be a nurse or professionally trained individual, although professionally trained personnel usually maintain a more respectful attitude toward their work and therefore produce better audiograms.

Stevedoring

—From page 21

properly stored in gear lockers, or lofts.

In 1944, a preventive maintenance program for automotive equipment was established. The significance of this program cannot be over-emphasized as there have been no accidents which could be attributed to the failure of this equipment since this time.

Each machine is equipped with engine-hour meters, and is pulled out of operation every 100, 200, 600, 1200 and 2400 hours for various service schedules. The machines are numbered and meter readings are recorded twice weekly to indicate a cumulative total for each machine. These records are maintained by the equipment foreman who is

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also responsible for the allocation of equipment to the various operations at different berths in the harbor.

Ninety-five pieces of equipment are subject to this program and include 32 tractors, 6 lumber carriers, 56 fork lift trucks and one hy-stacker.

The industrial engineering, maintenance and operating departments, working closely together, have developed methods of operation, of building drafts or sling loads of cargo and in designing cargo gear that is both safe and efficient. It has been of invaluable assistance to the safety program in standardizing handling of many commodities.

The "Near Miss" Program.

About a year ago this program was started, and it has proved to be one of the best promotional programs attempted to date. Through committee meetings, the company newspaper and employee safety letters, all employees have been requested to look for and report any unsafe conditions or practices that resulted in, or almost resulted in accidents. Such incidents are reported to supervisors or the safety division immediately and at the monthly safety committee meetings.

This idea has been met with much interest and enthusiasm by all, and has resulted in numerous suggestions which have been carefully considered, and action taken in almost every instance. Through this medium employees feel that they are taking an active part in the safety program, and it has done much to create a good safety attitude.

Too Many Solvents

—From page 29

must still depend upon the observation of others. A really exhaustive medical book on solvents such as the one put out by the British Committee on the Toxicity of Industrial Solvents⁴ contains a mass of case reports, many of them very old, and many of them contradictory. Furthermore, any book is at least a year out of date the day it comes off the press.

On the other hand, much of the material in text books is of unquestioned value and this is espe-



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cially so where the older, more familiar solvents are concerned. So, again I would say to you: Don't fail to consult the standard texts, but be wary of contradictory material, or medical material borrowed by a non-medical man.

As for manufacturer's handling instructions, they can be up to date, concise, specific, and extremely helpful. I wish they all were! One trouble is, every big manufacturer has a sales depart-

ment, and while they don't want the customers to have any real trouble, still . . .

As a matter of fact, I believe that handling instructions have been steadily increasing in quality, and will continue to do so. The Manufacturing Chemists' Association, with its handbook of standard warning labels, has made a great contribution, and of course the National Safety Council's safe handling sheets are indispen-

sable for those who use solvents.

Nevertheless, there can be glaring examples of failure to warn the customer. Or, some unqualified representative, through ignorance, may actually make misrepresentations as to the hazards of a solvent.

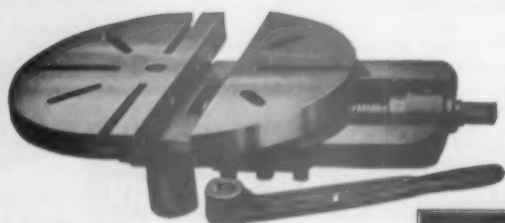
One day my industrial hygiene chemist came to me and said they were going to run a new process out in the plant, and that at one point the directions called for dropping about 200 gallons of an 80 per cent dioxan-water mixture, at boiling temperature, from a still to an open tank on the floor. He said he didn't think this would be very healthy. I agreed with him, and we did it a different way.

Now, this was not in 1930, when the first animal work appeared, nor in 1933, when the five Englishmen died. This was only a few years ago. Someone in the purchasing department heard that we had been a little exercised about this, and he mentioned it to the supplier's salesman. The salesman indignantly denied that dioxan was particularly dangerous as a solvent. We referred him back to his home office, where his store of learning was increased.

The industrial medical journals, naturally, are required reading for the full-time industrial doctor, and they contain a great deal of reliable and up-to-date information on solvents. If this information is abstracted and filed in an orderly way, it can be a real gold mine after a few years. However, the physiologic or toxic effects of many new solvents never get published in these journals because the plant doctor who sees one case will usually take immediate steps to get the process changed so that he will never see another one. All he has to report could be said in one paragraph, so too often he just keeps it to himself, or he may talk about it with some colleagues at a meeting—which is one reason we come to meetings.

So, I would say about industrial medical journals, that the more the industrial doctor reads them, the better. No one will ever know how many lives have been saved just because someone happened to

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read the right journal at the right time.

When we come to individual solvents, the specter of organic chemistry rears its ugly head, because the only logical way to classify these compounds is according to their molecular structure. This is the point where the speaker used to start drawing structural formulas while the audience proceeded to fall quietly asleep.

When we think of the straight-chain aliphatic hydrocarbons from the medical point of view, we picture a long series of solvents with properties varying in a regular way as the length of the chain increases. The four lightest members are gases at ordinary temperature and pressure, and are medically important mainly as asphyxiants. From propane on through decane, we are in the gasoline type of solvent, and recognize mainly the hazard of skin irritation and defatting, and the danger of the anesthetic effect in confined spaces.

Some have tried to define a chronic type of disease caused by such solvents, but they have not been convincing. The difficulty here is that solvents of this type most often are not used in the pure state, and are generally mixed with a large number of other and more toxic compounds.

Thirty years ago or so, gasoline made from American crude oil contained mostly straight-chain hydrocarbons, but today gasoline varies from one part of the country to the other, and even according to the season of the year. Certain gasolines may contain as much as 20 per cent of benzol, and catalytic cracking has introduced many branched chain compounds, unsaturated chains and cyclic compounds.

In such mixtures, the possibility of chronic disease from prolonged exposure cannot be discounted, but the symptoms described by various observers are variable and not clear-cut. This may be a reflection of the fact that each observer was probably dealing with a different mixture. Certainly, in mixtures containing as much as 20 per cent of benzol, we would expect damage to the bone

marrow after a sufficient lapse of time.

Where this factor can be ruled out, the main symptoms of chronic poisoning seem to indicate mild damage to the central nervous system, and consist of such things as headaches, weakness or paralysis of muscles, changes in personality or mood and so forth. With symptoms like these, there is always the question of how much comes from actual chronic

poisoning and how much is the result of neurosis.

Just as we may no longer think of gasoline as a relatively safe solvent, so the word "naphtha" should not mislead us. Petroleum naphtha is a complex mixture of straight-chain hydrocarbons, cyclic hydrocarbons, benzol and higher homologues of benzol such as toluene, xylene and cumenes. Coal tar solvent naphtha contains chiefly these aromatic compounds,

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and must be mistrusted because of its benzol content.

Passing now to the halogenated derivatives of the hydrocarbons, we encounter a number of widely-used common solvents, such as carbon tetrachloride, chloroform, and the various chloro derivatives of ethylene and ethane. In general, the addition of chlorine to straight chain hydrocarbons lessens the flammability, increases the narcotic effect and confers increasing toxicity with respect to the liver and kidney.

The fact that many of these compounds will ignite only with difficulty or not at all has had one very unfortunate result: the word "safety" has often been attached to them, either as part of the trade name, or in promotional literature. Now, white arsenic will not burn, but we don't think of it as being exactly "safe."

You may have heard this story as a gag, but it happened to me years ago, and I dare say it has hap-

pened to others. I had pointed out to a machine foreman that there was no excuse for using benzol to get grease off his machine, because benzol was extremely toxic. A few days later, he informed me with great satisfaction that he had solved the problem: he was using carbon tetrachloride. It was better in three ways: it took the grease off fine, it wouldn't burn or explode, and it dried up faster.

At that time, the maximum concentration recommended as safe for daily eight-hour exposure was the same for both solvents, and was only 50 parts per million. The man had just switched the punishment from his bonemarrow to his liver.

As a practical matter, we find carbon tetrachloride dangerous largely because familiarity breeds contempt. There was a time when a bucket of this commodity could be found in every machine shop, and any mechanic knew that he could use it as a degreasing agent

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with impunity. This was true, by and large, in a big, open room. The fatal accidents have occurred from what we call sub-acute exposure.

The mechanic would take the bucket of carbon tet into a small room with no ventilation, and would do a rather extensive degreasing job, perhaps even using a compressed air jet to hasten the drying. He might feel a little groggy, or have a headache, but otherwise had no warning that he had absorbed a fatal dose. He would go home under his own power, but next day he wouldn't show up for work.

By the time he got around to calling a doctor, fatal damage to the liver and kidney would be found, and he would die in a few days. We should remember that massive exposure to this solvent can also occur from the use of fire extinguishers in confined spaces.

A variety of solvents may be made by chlorinating ethane or ethylene, and these are widely

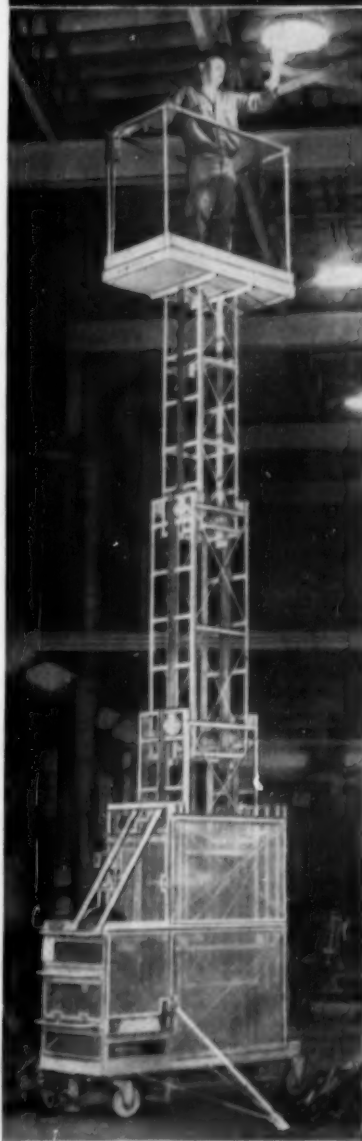
used in degreasing machines. The exact molecular structure is of importance, because there is a wide range of toxicity. For example, the present recommended maximum limit for trichlorethylene is 200 parts per million, whereas for 1,1,2,2-tetrachloroethane, it is only 5 parts per million. A good guide to the comparative toxicity of these solvents is the annual table of Threshold Limit Values adopted by the Governmental Industrial Hygienists Association.

When we are dealing with chronic exposure to chlorinated hydrocarbon solvents, the clinical picture is not so dramatic nor does it have such a grim outcome. The industrial physician is on the alert for vague stomach symptoms such as loss of appetite, a full feeling in the upper abdomen, tenderness over the liver, or a sudden distaste for tobacco. These may all indicate mild liver damage, and should lead to various liver function tests. Naturally, the operation should be promptly re-sur-

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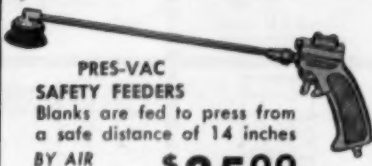


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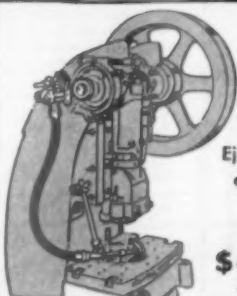
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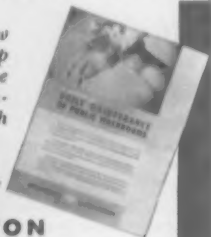


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veyed by the industrial hygienist, and sources of exposure eliminated.

The addition of halogens to alcohols, acids and ketones generally gives compounds which are more or less unstable in the presence of water, and this limits their use as solvents. It also tends to increase their irritant effect on mucous membranes and skin, and thus increases their warning properties. However, there are notable exceptions to this rule, and all compounds of this type should be scrutinized with great suspicion. Examples are ethylene and propylene chlorohydrins, which are severe central nervous system poisons.

The Alcohols

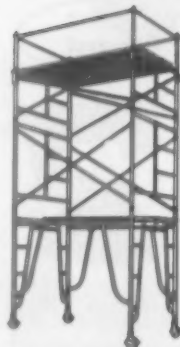
Among the alcohols, methyl and ethyl alcohol are by far the most commonly used as solvents. It is common knowledge that acute exposure to methyl alcohol, as by drinking it or inhaling concentrated vapor in a closed space, can

cause blindness or death. Within recent years, the chemical explanation of this poisoning has been demonstrated, and a rather successful emergency treatment has been developed.

This is based on the discovery that methyl alcohol is oxidized in the body to formaldehyde and then to formic acid. This accumulates and produces a severe acidosis. Large amounts of sodium bicarbonate, either intravenously or by mouth, have saved many victims who would otherwise have died. In many cases, blindness was prevented as well.

The real problem with methyl alcohol is to judge the hazard of chronic poisoning, and medical literature leaves much to be desired. Considering the enormous amounts of this solvent which have been used in the form of shellac by practically every male citizen of this country over the age of 10 years, it is hard to regard it as a great menace. Chronic poisoning, if it does exist, must be

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very rare. The present recommended limit of 200 parts per million is probably conservative.

The properties of ethyl alcohol as a solvent, not only of fats but of inhibitions, are well known. From the medical viewpoint, the various denaturants used in ethyl alcohol are of considerable importance. They are designated by non-informative code numbers. Three popular ones are 12-A, which contains 5 per cent benzol, 23-A, with 5 per cent acetone, and 3-A, with 5 per cent methyl alcohol. I consider the 12-A formula to be a definite health problem.

As we pass on to the longer chain members of the alcohol series, the acute toxic effects increase; it takes a smaller dose to kill or stupefy. But the irritant properties increase also, thus giving warning, and the volatility decreases, so the practical hazard is not great.

Another class of alcohols are those having more than one hydroxyl group, and of these ethylene and propylene glycol and

their various derivatives have enjoyed wide use as solvents. I referred earlier to ethylene glycol as a kidney poison when taken internally.

This alcohol can be conjugated with itself to form diethylene glycol, and each of these can form ethers with other alcohols. The methyl, butyl and ethyl ethers are widely used as solvents under the name "cellosolve." The recommended limits for these vapors in air are 25 parts per million for the methyl ether and its acetate, and 200 parts for the ethyl and butyl ethers.

Accidents which have occurred with this family of solvents, like those with dioxan, arose because animal experiments were mistakenly believed to show that they were much less toxic than they actually were, and also because the toxic effects were delayed and the warning properties poor.

The esters, of which some common ones are combinations of methyl, ethyl, propyl, butyl or amyl alcohol with formic, acetic or lactic acids, are a group of useful solvents in common use. The acetates have a strong, fruity odor, which becomes sickening and irritating at moderate concentrations, thus providing good warning. The formates are even more irritating. The lactates are in general much less volatile, and have not presented a problem in industrial use. Reports of chronic poisoning are few and not very convincing.

Of the ketones, acetone and methyl-ethyl ketone deserve mention as solvents. Their irritant properties are such that few cases of poisoning have been reported. Of the ethers, diethyl ether is the commonest solvent; its low toxicity might readily be guessed from the fact that it is often referred to as the safest general anesthetic.

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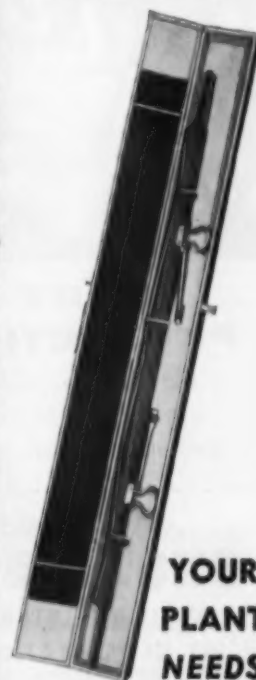
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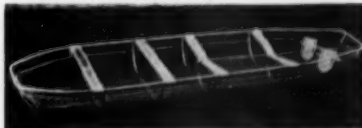
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titute. This compound has no warning properties worth mentioning, except for acute exposure to high concentrations. In this case, the victim is warned by the smell, and by the onset of dizziness.

For chronic exposure, the warning is nil, since the lowest concentration which can be detected by smell is in the danger range for chronic exposure. In other words, if you can smell benzol, there's already too much present. In this dangerous range, benzol has a rather pleasant smell for most people, and it is psychologically impossible to convince the average factory worker that this amount of vapor can hurt him. He will tell you that he has been exposed to this extent for years, and he's still healthy, isn't he? He knows people who have had far greater exposure and they're still alive and well.

It does no good to tell him that some people are resistant to the poison while others are not, or that some fatal cases only ap-

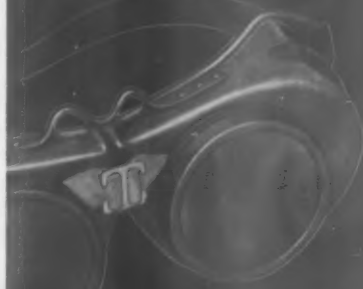
peared after years of exposure. He has unshakable faith in his own personal immunity. If he turns out to be wrong, as sometimes happens, his bone marrow will slow down on the production of white cells and blood platelets, but he will have absolutely no way of knowing this until the damage is beyond repair.

At this point, he is in the same terrible position as a late victim of atomic bomb damage, and he will have the same symptoms: bleeding of the gums, stomach and intestine, large bruised spots on the skin, pallor, weakness, and fulminating infections of the throat.

Massive blood transfusions may help him temporarily, but he has an excellent chance of dying in spite of them. Nobody who has ever seen such a case and realized how pitifully little can be done once the symptoms appear, can avoid the feeling that benzol is indeed the most insidious poison ever to find such wide use. Carbon disulfide is a possible rival.

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Lines of Defense

We have two lines of defense against this enemy.

The first line carries the battle into enemy territory, so to speak, by constant industrial hygiene surveys in areas where benzol is in use. Wherever the process is found to be emitting benzol vapor, we have the engineers either close up the equipment, or provide ventilation to carry the vapor away.

The second line of defense is in the medical department, and consists of blood examinations every two months on all people who work with benzol.

If the white cell count drops below a certain figure, in this case, 6000, the count is repeated at one month intervals until it returns to a higher value. If any worker shows a white count of less than 5,000, the test is repeated immediately, and, if confirmed, a most careful scrutiny is made of all details of the job. In most cases the worker is removed from

all contact with the solvent until the count is in the normal range again.

This system is not as simple and foolproof as it might sound, because human beings vary tremendously. If you take enough people, all healthy and none exposed to benzol, you will always find a few of them who have white counts less than 5,000, and a few greater than 15,000. This is why the clinical judgment of a doctor has to accompany such a testing program. The individual worker's past record also helps to evaluate test results.

We have experimented with a third line of defense, this one out behind the enemy's lines, so to speak. This was a formal course in toxicology for chemical supervisors. Nothing was done to make it easy for the foremen to take this course. They came to the classes on their own time one night a week. The first course had 17 sessions. There was even a two dollar registration fee. In spite of this, some 25 enrolled and about 18 completed the series.

Now, when you try to teach a group of adults who are giving their own time, after dinner, at the end of a day's work, with no compulsion to keep on attending, you have a tough assignment. We tried every visual aid and demonstration we could think of.

For example, in the session on lung irritant gases, we had a fan up in the front of the room, and as the different ones were described, we would hold a sample in front of the fan so that it wafted through the room. Nobody went to sleep that time! In the lecture on narcotic solvents, we had white mice, and as each solvent was mentioned we would pour a little of it on some cotton in the bottom of a beaker. Then we inverted the beaker over a mouse. Unfortunately, we had neglected to fasten the cotton to the beaker, so a number of mice had it fall over them, and by the time we could get them out they were dead.

Well, that wasn't the way we had planned it, but throughout the rest of the hour, there were two or three dead mice lying on the middle of the table, and this ob-

BURN! PAIN... SHOCK... SPRAY IT!

... the best and safest method for the "first aider" because he doesn't touch the patient!

QUICK, THOROUGH, PAINLESS, ASEPTIC...

Doctors agree that certain basic conditions are present in all burn cases. The "first aider" is qualified only to deal with the first three: Relieve Pain, Prevent Infection, Treat Shock. Spraying burns does this best. And the MSCO assortment of Burn Spray Kits is the largest ever offered: Americaine or Kip Antiseptic Oil in either compact Unit-Type Packets with Pressure Cartridge Spray or Complete Burn Spray Kits with Aerosol Dispensers; Foille and Hydrosulphosol Burn Spray Kits; Fire Department Kits. MSCO also supplies all standard burn ointments in unit form for first aid kits. See your MSCO distributor for a demonstration or write for details.



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unit first aid*

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WHEN YOU USE
**DOLGE
SS WEED-KILLER**

For areas where you want ALL unsightly, fire-inviting weeds and grasses eliminated, such as railroad sidings, along fences and abutments, parking lots, drives and walks. An economical solution of SS Weed-Killer kills plants and seeds on contact, then works down through the soil, killing roots and sterilizing surrounding earth—affording freedom from weeds for as much as an entire year!

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on request.

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SANITARY SURVEY
OF YOUR PREMISES
SEE YOUR
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STOP THAT FALL



Safety Lifeline Lock FOR SCAFFOLDS AND SWINGS

Locks automatically, instantly. Slips onto lifeline rope. Moveable up or down with man. Instant locking position at all times, whether stationary or being moved up or down.

Snap into safety belt: No adjusting. Inexpensive. Over-all length approx. 13". Does not harm rope. Weight: approx. 5 lbs.

Recommended for use on standard $\frac{3}{4}$ " or $\frac{1}{2}$ " Manila rope.

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If you would like to be considered for one of these excellent opportunities, please contact

EMPLOYMENT OFFICE
ROCKET FUELS DIVISION

**Phillips Petroleum
Company**

MCGREGOR, TEXAS

ject lesson made an unforgettable impression. Here were liquids these men handled every day by the gallon, like water, but they could kill in a few seconds!

Another thing that turned out to be very important, and very hard for us doctors to do, was to speak in non-medical language. I made a bargain with the class that if I used a medical term without first defining it, I would pay anyone who called me first on it a dime. This must have kept my mind on my work because I never had to pay off.

Another feature that the class seemed to like, and which was valuable to us in seeing how much information we had put across, was a multiple choice quiz, given at the beginning of each session on the material that had been presented the time before. These were self-graded, and handed in without names.

These courses were given on two consecutive years, and I believe they were worth the effort. We noticed a much more alert and suspicious attitude among these men concerning any new material that they were called upon to handle, and they asked us to investigate a number of exposures to which they had been quite indifferent before they took the course.

Subsequently, a short version of these lectures was presented to the entire research staff—an imposing array of PhD's in organic chemistry, and many of these later commented with amazement on how little of this information had been included in their formal schooling. I like to think that after the lectures a lot of work was done in hoods which had formerly been done on open benches.

The medical problems involved in handling industrial solvents require four things for their successful management.

First is extensive up-to-date knowledge of solvents and their effects on the human body.

Second is an efficient industrial hygiene team to provide the facts of exposure as they occur from day to day.

Third is a good medical department so set up that employees come freely with all their minor complaints, and so staffed that the

full-time doctor sees a large number of workers every day. Only in this way will the early signs of solvent exposure be picked up. A natural part of this work, of course, is the performing of whatever periodic examinations are indicated.

Fourth is a program of continuing education reaching all levels of the organization, but particularly aimed at operating supervisors. This is a large order, but we can't afford to be satisfied with less.

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Weights only 30 pounds. Easy to operate, does more for the patient.

Write today for demonstration without obligation or write for pamphlet N-104.



Makers of the Marger Drunkometer used all over in the industry and police departments, including New York.

Calendar Contest Winners for March

First prize in the National Safety Council's Safety Calendar Contest goes this month to Mrs. Roy Burgess, Appalachian Electric Power Co., Roanoke, Va. The theme in this contest was stop accidents before they happen. Mrs. Burgess' line was adjudged the best of all those submitted. It was:

*They gave way 'neath his "wait"—
NOW he cares.*

Second prize went to Raymond H. Welsh, Pittsburgh & Conneaut Dock Co., Conneaut, Ohio, for this line:

*This old house was bequeathed to
his heirs.*

Third prize was awarded to Mrs. Roy E. Goodnight, Phelps Dodge Corp., Morenci, Ariz., for the following line:
*Brought breaks, bruises, bills and
wheel-chairs.*

The March limerick was:

Said Mrs. Jones to her hubby, "Those
stairs

Could certainly use some repairs."

"Nuts," said hub, "They're okay."
But the very next day

Thirty \$5 awards were issued to:
Louis W. Gregoire, E. I. du Pont de
Nemours Co., Inc., Seneca, Ill.

Mrs. Ned Fish, University of Mis-
souri, Columbia, Mo.

Hugh Gilbert Hoar, Naval Air Sta-
tion, San Diego, Calif.



Said Mrs. Jones to her hubby, "These stairs
Could certainly use some repairs."

"Nuts," said hub, "They're okay."
But the very next day

Mrs. Grace Martin, Pawtucket, R. I.
(Individual Member).

Jane E. Ralph, Geophysical Service,
Inc., Dallas, Texas.

Franklin Landers, National Lead Co.,
Houston, Texas.

Mrs. Brian W. Hugon, Texas Electric
Service Co., Fort Worth, Texas.

Mrs. Frederick M. Gerhard, American
Airlines, Inc., Knoxville, Tenn.

Mrs. R. L. Griggs, Aluminum Com-
pany of America, Alcoa, Tenn.

Mrs. Ann Lacy, Mississippi Chemical
Corp., Yazoo City, Miss.

Robert Carey, Bethlehem Steel Co.,
Pottstown, Pa.

Warrick E. Lee, Bell Telephone Co.,
Carbondale, Pa.

Helen A. Thilenius, Stix, Baer &
Fuller, St. Louis, Mo.

Mrs. John A. Jansens, Falstaff Brew-
ery, San Jose, Calif.

Lois R. Kodalen, Dodson, Mont. (In-
dividual Member).

William L. Booker, Sinclair Pipe Line
Co., Casper, Wyo.

Mrs. Jennie B. Creager, Pacific Tele-
phone & Telegraph Co., Medford, Ore.

Mrs. Vera A. Pelton, United Air
Lines, Seattle, Wash.

Marian L. King, Universal Atlas Ce-
ment Co., Universal, Pa.

Mrs. Amil L. Sutter, International
Harvester, Milwaukee, Wis.

H. T. Orsborn, Elgin, Ill. (Individual
Member).

Charles Clear, Anchor Hocking Glass
Corp., Winchester, Ind.

Richard N. Taiclet, Republic Steel
Corp., Warren, Ohio.

Miss Ella L. Starbuck, Bedford, Mass.
(Individual Member).

Katherine Wyckoff, United Aircraft
Corp., Windsor Locks, Conn.

Mrs. Harvey Muller, Danboro, Pa.
(Individual Member).

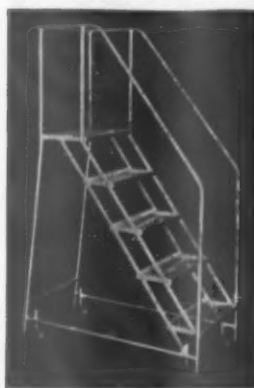
Ethel Schweitzer, Welland Chemical
Co., Stamford, Ontario, Canada.

Mrs. George Clow, Niagara Mohawk
Power Company, Fredonia, N. Y.

George Roberts, Bergstrom Paper Co.,
Neenah, Wis.

D. C. Reagan, Alpha Portland Cement
Co., Jamesville, N. Y.

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45"—5 Step

New improved design now being made from 1" diam. round furniture tubing.

Mounted on Swivel Brake Casters which allow the ladder to be rolled freely when no one is on it. When you step on the ladder the rubber cushioned legs rest on the floor and prevent rolling.

Made in 7 heights: — 18" 2 Step,
27" 3 Step, 36" 4 Step, 45" 5 Step,
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All are made in 18", 20" or 26" width.
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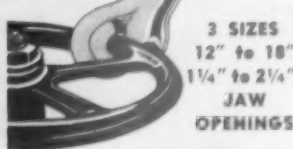
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12" to 18"
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BONE-DRY SHOE MFG. CO.

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Cases for Comment

—From page 12

had brought the vehicle to a gradual full stop opposite the driveway into which he customarily turned left to make this delivery. He had brought the vehicle to a complete stop to await the passage of oncoming traffic. The driver had indicated his intention to turn left by proper means of the truck's mechanical signal. After the truck had been at a complete stop approximately 10 seconds a local streetcar approaching from a direction behind the truck ran into the rear of the truck. The truck driver suffered minor bruises, shock and a dislocated rib, causing disability of approximately 60 days. The transit company conceded that the streetcar operator was at fault and arranged to accept financial responsibility for damage to the company vehicle and to the employee for his injuries.

Decision. This injury should be included in the industrial injury rate of the company in accordance with the total extent of the disability. There appears to be no question that this injury arose out of and in the course of employment.

Comment. In the introduction to the Z16.1-1954 Code it states "the fact that the employee or employer did not have control of a work injury shall not be a criterion for excluding the work injury from application of the provisions of this standard."

Companies should not forget drivers of all power vehicles in their safety promotion efforts. Depending upon the exposure due to environmental or terrain factors, this employee might require special safety training in addition to the regular safety program. Defensive driving on the road or in the plant should be especially emphasized.

A young lady filling out an employment application hesitated a moment when she came to the blank marked "age." Then she quickly wrote down "atomic."

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This new, chemically treated tissue is low in price and does away with expensive chemical sprays.

Cleans and no-fogs goggles, eyeglasses and welding lenses with the addition of water only.

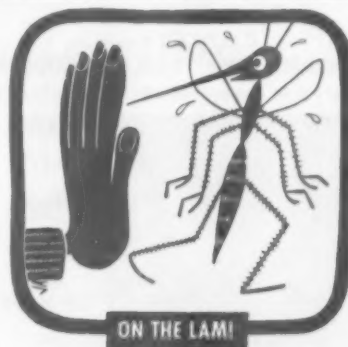
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Prevents death and injuries from falling.

Inexpensive; Easy to install. Clamps to ladder rung or structures with peg steps or framework, etc. No welding or cutting.

Automatic; Positive. Will catch workman if he starts to fall even if unconscious.

Simple to operate; No upkeep. Requires no attention from climber.

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If you are now selling safety equipment to industrial plants, here is a most interesting opportunity. We are successful specialists in the safety toe shoe field and interested in expanding our sales force. We need experienced men to sell our established line of Safeguard safety-toe shoes in a protected territory. Our accounts include the largest in industry and we supply the finest industrial plants in the area we now cover. As we expand we can use experienced men on a full or part-time basis. Top commission paid. This is a quality line of steel-toe safety shoes made to our high-grade specifications by one of America's largest shoe manufacturers. Please give territory you cover, age, experience, account connections and references.

Reply

MILLER INDUSTRIAL CORP.

1502 Demonbreun Street
Nashville, Tennessee

Safety Library

—From page 8

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Distinguished Service

—From page 4

vision, Seven awards: Carrollville (Wis.) Plant; Garwood (N. J.) Plant; Swedeland (Pa.) Plant; Technical Department, Pittsburgh; Utica (N.Y.) Plant; Warren (Ohio) Plant; Woodward (Ala.) Plant.

Metals Disintegrating Co., Inc., Pulverizing Machinery Division, Summit, N. J.

National Gypsum Co., Matteson (Ill.) Unit.

Pickands Mather & Co., Two awards: Albany Underground Crete Mining Co., Hibbing, Minn.; Tioga No. 2 Mine, Western Mining Co., Hibbing.

The Quaker Oats Co., Three awards: Chemical Plant, Memphis; De Pew (N. Y.) Plant; Tecumseh (Mich.) Plant.

Signode Steel Strapping Co., Chicago, Two awards: Baltimore Plant; Wierton Plant.

Sylvania Electric Products, Inc., Waldoboro (Me.) Plant.

U. S. Steel Corp., Roll and Machine Works, Pittsburgh.

SELF-STICKING SIGNS

A complete line of Self-Sticking Accident Prevention Signs in wordings and sizes recommended by ASA and NSA is now available from the W. H. Brady Co. Stocked in sizes 3"x14", 3 1/2"x14", 3 1/2"x10", 5"x9", 2 1/4"x9" and 2 1/4"x4 1/2". Stick to any surface. Are put up fast by unskilled help without nails, screws, tools. Write for 16-page Catalog No. 145-C and free usable samples.



Another Brady product, Self-Sticking Warning Stripes and Warning Checks in rolls, lets you mark any area fast with either diagonally striped designs or checkerboard designs. Applied right off the roll. Eliminate costly hand painting. Made of self-sticking vinyl plastic, acetate fibre and reflective "Brady-lite." Stocked in 3 different color combinations in rolls of various widths and lengths. Write for Bulletin #143-A and free samples.

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SAVE fingers, eyes and dies!

Get Osborn Safety Pliers . . . made of Osmolloy, the sturdy, long lived aluminum alloy that will flatten under impact, leaving dies unharmed. Thousands now in use. Write for literature!

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Applies cleanser,
scrubs, flushes,
and picks up—in
ONE operation!

Here's a timely answer to the need for reducing labor costs — a single cleaning unit that completely mechanizes scrubbing. A Combination Scrubber-Vac applies the cleanser, scrubs, flushes if required, and picks up — all in one operation! Maintenance men like the convenience of working with this single unit . . . the thoroughness with which it cleans . . . and the features that make the machine simple to operate. It's self-propelled, and has a positive clutch. There are no switches to set for fast or slow — slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly.

Model 213P at left, for heavy duty scrubbing of large-area floors, has a 26-inch brush spread, and cleans up to 8,750 sq. ft. per hour! (Powder Dispenser and Level Cable Wind are optional.) Finnell makes Scrubber-Vac Machines for small, vast, and intermediate operations, and in gasoline as well as electric models. From this complete line, you can choose the size and model that's exactly right for your job (no need to over-buy or under-buy). It's also good to know that you can lease or purchase a Scrubber-Vac, and that a Finnell Floor Specialist and Engineer is nearby to help train your maintenance operators in the proper use of the machine and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest Finnell Branch or Finnell System, Inc., 2205 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines



BRANCHES
IN ALL
PRINCIPAL
CITIES

NEW SAFETY EQUIPMENT

Further information on these new products may be obtained by writing direct to the manufacturer or by circling the corresponding item number on the Reader Service Postcard.



Goggle Bridge-Pad

A new bridge-pad for spectacle-type goggles has just been announced. Made of polyethylene, these molded pads are flexible enough to adapt themselves to the

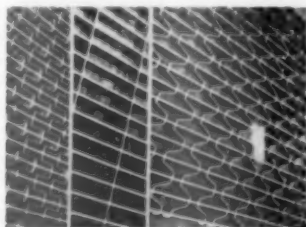


individual nose structure. They spread the weight evenly and comfortably. They are available on comfort-bridge spectacle-type goggles or separately as replacements for non-flexible plastic pads furnished originally.

Chicago Eye Shield Co., 2306 Warren Blvd., Chicago 12. (Item 1)

Aluminum Gratings

Aluminum grating is now available in rectangular, diagonal, super safety and radial types—especially



applicable where dead weight and corrosion present design problems. The rectangular type, recommended for ordinary use, can be supplied with openings ranging from $\frac{3}{4}$ inch to 6 inches with cross bar spacing from $\frac{3}{4}$ to 8 inches. The interlocked super safety grating is made with $\frac{3}{16}$ inch bearing bars spaced 1 or $1\frac{1}{2}$ inch apart and cross bars 2

inches center to center. This grating is recommended for areas open to the public or for hazardous areas.

The diagonal grating made with $\frac{3}{16}$ inch bearing bars spaced 1 or $1\frac{1}{2}$ inch apart and cross bars 2 inches center to center provides an ornamental effect. Radial grating for circular walkways is made to size. The bearing bars are placed radially and the cross bars are curved. Grating of this design is furnished in aluminum and bronze.

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh, Pa. (Item 2)

Burn Counteracter

A new product has recently been made available which is claimed to counteract both acid and alkali burns immediately, without inducing new irritations. "Neutralize" can be employed safely in sufficient concentra-



tions to assure rapid and penetrating neutralization. Results are secured by simply pouring the liquid into the eyes or over the skin. It has a pH of 7, and, owing to its buffering action, the hydrogen ion concentration always remains in the physiologic range. Available in 4- and 32-ounce polyethylene bottles.

E. D. Bullard Co., 275 Eighth St., San Francisco 3. (Item 3)

Wire Rope

A new high strength wire rope

now being manufactured is claimed to be at least 15 per cent stronger than any grade previously available. An average tensile strength of 300,000 psi has been achieved by the use of special analysis high carbon steel wire and improved processing. Initial production will go to the construction, petroleum, mining and logging fields. It is already being used by the Navy for steam jet catapult launching assemblies. Present diameters of the rope range from $\frac{1}{2}$ inch to 2 inches. It is wear-resistant and keeps its shape under pressure. Available for a variety of uses in a variety of sizes.

American Chain & Cable Co., Inc., 929 Connecticut Ave., Bridgeport 2, Conn. (Item 4)

Heat-Resistant Hood

A new lightweight protective hood made of "Fyre-Armor," an aluminumized flame and heat resistant fabric has been introduced, claimed to protect the firefighter against radiant heat temperatures as high as 2500 F.



The hood features heat-resistant eyeglasses, freedom of movement and certified protection against radiant heat. It is spacious enough to permit the wearing of standard breathing equipment or a smoke mask, covers the head, chest, shoulders and back, and is constructed to be worn over a standard skull guard.

The fabric is made with various metallic layers and an outside coating of aluminum foil. It is also available in firefighting suits, rescue blankets, industrial aprons, mittens, leggings and boots.

Far-Ex Corp., 75 West St., New York (Item 5)

Automatic Eye Shield

An automatic shield to protect machine tool operators from flying chips has been announced. When attached to a machine, the device automatically interposes a shield of transparent plastic in a line between



the eyes and neck of the operator and the source of flying chips. When the spindle is within the last half inch of its return travel, the shield begins to retract. At the beginning of the cycle, the shield moves into position during the first half-inch of travel of the spindle so that it is in position well in advance of the moment the tool contacts the work.

"Chips Stopped," as the device is called, never lets the operator forget to put the shield in position.

Hard & Co., Inc., 3500 Pontiac Rd., Ann Arbor, Mich. (Item 6)

Explosion Extinguisher

A device has been developed specifically to prevent fuel tank explosions after direct hits in combat. The



heart of the device is a miniature, rugged, lightweight photoconductive cell developed for detection of combustion. Mounted inside the fuel tank of a plane, the cell detects an explosion by responding to its infrared output the instant it "sees" it. Speed of detection can be within one-millionth of a second of ignition.

Coupled with the cell inside the

fuel tank is an explosive capsule containing a liquid extinguishing agent. When a bullet makes a direct hit on a fuel tank, the cell responds to the infra-red radiation of the incipient explosion by counter-exploding the frangible capsule to flood the fuel tank vapor space with extinguishing liquid.

Although originally developed for military use, adaptations are being made for ground fuel storage tanks, pumping stations, and similar areas.

Fireye Div., Electronics Corp. of America, 77 Broadway, Cambridge 42, Mass. (Item 7)

Barrel Hook

This all-position barrel hook has a sliding ring which can be locked between links. This feature allows the drum to be either lifted or tilted for emptying. Overall length of the hook is reduced from 47 inches to 42 inches, providing for greater head room when loading or unloading



drums from storage racks. A satisfactory safety factor is claimed to have been allowed above the 1500 pound safety test given each hook.

The hooks are made of Ampeco Metal, a durable, spark-resisting alloy. Their principal use is for handling drums of flammable or explosive materials.

Ampeco Metal, Inc., 1745 S. 38th St., Milwaukee 46, Wis. (Item 8)

Ear Protective Devices

The "Earsaver," designed to provide protection for workers exposed continuously to high-intensity noise, and the "Noisefoe" for men who



must enter and leave noisy areas frequently, were recently shown for the first time. Both devices utilize

an over-the-ear cushion of soft, spongy material which soaks up large-amplitude noise waves.

The Earsaver is a baseball-type peaked cap which holds two ear cushions in position over the wearer's ears. Made of cotton gabardine, it has a wide cape of elastic material which extends around the back of the neck and over both ears. This presses the cushions against the face, assuring an effective seal.

The Noisefoe has the same type cushions attached to an easily removable spring-type head suspension.

Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh 8, Pa. (Item 9)

Welder's Glove

The welder's glove illustrated is specially made of tanned leather



with extended welted seams on all fingertips. It features a seamless palm, wing thumb, and one piece back with leather welted seams at points of greatest wear. Additional protection is provided by a wool heat breaker in the back. Leather is pale green.

Singer Glove Mfg. Co., 860 W. Weed St., Chicago 22. (Item 10)

Insuline Connectors

Built-in plastic bushings are now being used to prevent wiring from coming in contact with the metal of the raceway at the outlet. According



to the manufacturer, these fittings protect wire insulation from damage and reduce the effort required by an electrician to pull wiring through a raceway. The plastic bushings assembled integral with the connector

bodies have many important electrical features. One is surface smoothness, providing low friction for wire pulling and prevention of abrasion of wire insulation. Another is high insulation. Also it resists corrosion and has high impact strength.

The Thomas & Betts Co., Elizabeth, N. J. (Item 11)

Magnetic Sweeper

The magnetic sweeper illustrated pulls ferrous objects out of loose gravel and sand or grass quickly and efficiently. It is non-electric, and available with all attachments for



manual use or hitching to almost any trailer. All models have puncture-proof tires, roller bearing wheels and removable long steel handles. The Alnico V magnetic element will last indefinitely, according to the manufacturer. The sweeper comes in four sizes and three magnetic strengths for medium, heavy and extra-heavy duty.

Eriex Mfg. Co., Erie Pa. (Item 12)

Winch Hoist

According to the manufacturer, this winch hoist weighs only 9 pounds, but can handle up to 1½



tons, pulling, lifting, lowering, moving, stretching or straightening at any angle. Its new and more rugged frame protects the ratchet teeth. This is an advantage when working under certain conditions such as along side steel wire or walls. If excessively overloaded, the revers-

ible safety handle will bend before any other part approaches the breaking point.

The Lug-All Co., 355 Lancaster Ave., Haverford, Pa. (Item 13)

Fire Alarm

A loud, clear alarm warns of fire in the home, farm, or factory, giving ample time for escape or fire con-



trol. This new, compact (about the size of a pack of cigarettes) alarm mounts on the wall with two screws and plugs into a standard electrical outlet. Operating on a heat principle, the alarm will sound when temperature in the room reaches the dangerpoint. The device, called the Fire-Watch Alarm has UL approved parts and carries a life-time guarantee.

Auto-Matic Alarm Co. of New York, 2418 East 27th St., Brooklyn 35. (Item 14)

Stabilized Safety Solvent

A new, highly stabilized solvent of low toxicity has been announced. Called Vythene, this produce is non-inflammable, fast evaporating and suitable for a variety of industrial and household purposes. It may be used for cleaning electric motors and equipment, typewriters, metals, grease spots, etc.

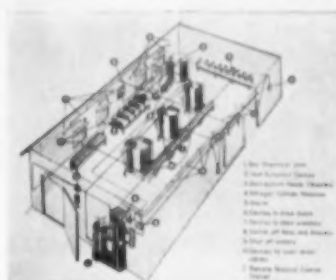
Vythene is a stabilized 1, 1, 1-trichloroethane which can be refluxed indefinitely in the presence of such reactive metals as aluminum, brass and copper without chemical breakdown. It is non-corrosive to all metals and practically inert to ordinary electrical insulating varnishes and materials.

Tect, Inc., Cortland Ave. and Erie St., Dumont, N. J. (Item 15)

Fire Protection System

How a paint mixing room in which various flammable liquids are stored would be protected by the automatic dry chemical piped system recently developed is shown in the illustration below. In case a fire starts, a heat actuated device automatically reports a fire to the nitrogen cylinder release. Windows and doors are automatically closed, fans and motors are shut off, drain valves are opened and an alarm is sounded. At the same time, dry chemical is ex-

pelled through distribution heads in the pipes, and puts out the fire immediately. By using automatic se-



lector valves, one piped system can protect two or more separate hazards. Dry chemical flows only into the piping that leads to the fire area involved. The system may be designed for either local application or total flooding.

Ansul Chemical Co., Marinette, Wis. (Item 16)

Waste Receptacles

A new waste receptacle is equipped with a self-closing top door with easy and silent spring action.



The round design with opening in top provides accessibility. White baked on enamel finish, wrap-around stainless steel base and extra heavy duty steel chemically treated for corrosion resistance are features of this product. Watertight galvanized liner is equipped with handle for emptying.

The Bennett Mfg. Co., Alden, N. Y. (Item 17)

Magnetic Broom

A new rotary magnetic broom requiring no batteries or electric wiring has been introduced. The broom utilizes a permanent, rotating-cylinder magnet, and is operated like a domestic carpet sweeper. The unit picks up nails, screws, nuts, scraps, chips, etc. The scrap load is easily released for disposal by sliding a neoprene unloading ring from one end of the cylinder to the opposite.

The offset handle eliminates stooping or bending, yet permits sweeping



under objects having low floor clearance. Available in a choice of 5 different magnet widths.

Magnetool Div., Multifinish Mfg. Co., 26341 West Eight Mile Rd., Detroit 19, Mich. (Item 18)

Latex Bandaging Tape

A new bandaging tape that sticks only to itself, never to skin or hair, and stays firmly in place without ties, pins, or clamps is now on the market. The porous latex crepe allows air to penetrate to promote



healing, yet is waterproof. To apply, cut off strip to proper length, separate protective covering from the gauze bandage, fold pad of gauze to fit wound and apply tape. Band-seal is 1 1/4 inches wide and is recommended by the manufacturer as a support for sprains and strains or as a quick tourniquet.

The Caster Products Co., 1171 Wooster Rd., North Barborton, Ohio. (Item 19)

Accident Prevention Signs

Self-sticking accident prevention signs in three standard sizes (5" x 14", 3 1/2" x 10", and 2 1/4" x 9"), are now available in over 1,000 different



legends. The signs include both general signs such as "Danger" and

specific signs such as "No Smoking."

The signs are made of impregnated cotton cloth with a temperature-resistant pressure-sensitive adhesive. Each comes mounted on its own individual dispenser card, just peel from card and apply. They will stick without moistening to any clean, dry surface. Signs are in wordings and colors specified by American Standards Association.

W. H. Brady Co., 727 W. Glendale Ave., Milwaukee 12, Wis. (Item 20)

Safety Light

Five new models of the "Safeguard Lite" are now available, each designed to supply light by battery power when electricity fails. As soon as the electric current stops,



the battery power is automatically turned on, lighting the room until electrical current is restored. In addition they can be used as emergency lights and searchlights when not plugged into electrical current.

Four of the models are for use on walls, tables, or floors; the fifth model is especially designed for a nursery or child's room. All are equipped with battery test buttons and 6-volt G.E. sealed beam lamps. Cases are made of heavy steel. The smallest model is 6" x 5" by 6".

Jamil, Inc., P.O. Box 717, Winter Park, Fla. (Item 21)

Industrial Paint

A new paint suitable for municipal, airport, highway and industrial linemarking has been developed. The manufacturer claims the product called Glazroc is odorless, fire resistant, fast drying and may be thinned with water. It will adhere to concrete, metal, wood, plastic, and many other surfaces. It is said to cover dirt and grease. When used as a line or sign marking paint it will not react chemically on tar or asphalt. It is non-tracking after 30 minutes, will withstand temperatures up to 500 F. Glazroc can be applied thin or heavy with either brush or spray machine, and is removed from brushes with soapy water.

Rock Paint and Chemical Co., Fort Atkinson, Wis. (Item 22)

Wet-Dry Vacuum Cleaner

Whether the user requires a vacuum cleaner for such heavy volume jobs as cleaning out elevator pits or



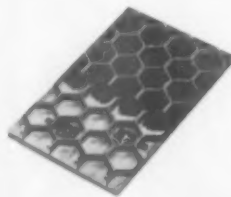
for ordinary maintenance cleaning or for such delicate equipment as switchboard wiring systems, this cleaner will do the job, says the manufacturer. Called the E-200, it features a maximum 45-inch water lift and 18-gauge steel tank with a capacity of 10 gallons wet or 1 1/4 bushels dry. It will pick up water, cleaning solutions, dirt, lint, scraps of foreign material. Also it can be used to spray paints and insecticides or blow dirt out of inaccessible places.

The E-200 is equipped with a Universal type AC-DC, 115-volt, 600-watt motor, precision ball bearing power unit permanently sealed, and 30-foot, 18-gauge, 3-conductor cable with built-in strain reliever. Weight 48 pounds. Special attachments are available.

Multi-Clean Products, Inc., 2277 Ford Parkway, St. Paul 1, Minn. (Item 23)

Floor Armor

Announcement has been made of a floor armor with less weight per square foot and a greater exposed steel surface, that is economical to



install. The 3/4" x 16 gage (.065) Hexteel can be used for resurfacing existing concrete or wood floors. The exposed steel surface armor is 18.15 square inches per square foot, and the weight is 1.7 pounds per square foot. The armor, filled with hot or cold mastic, can be used for resurfacing ramps, garages, factory aisles, runways, loading docks, etc. It can be used either as a steel armor in

new concrete floor installation or in conjunction with a mastic fill on existing concrete or wood floors. It forms a continuous steel floor armor which prevents cracking, swelling, warping and shrinking.

Sides and ends are locked together on the job site to form a continuous floor.

Klemp Metal Grating Corp., 6603 S. Melvina Ave., Chicago 38. (Item 24)

Folding Steel Barricades

Illustrated here are folding steel barricades from four to ten feet long, combining heavy-gage steel top members with steel legs which fold into the tops to provide compact units. Two barricades can easily be carried and set up by one man. The



legs lock in place, carrying handles and lantern hooks are welded into the top members and holes are provided for attaching electric "flasher" lanterns. Finished in glossy pavement yellow, either plain or striped.

All-Craft Mfg. Co., 5035 N. 124th St., Butler, Wis. (Item 25)

Survey Meter

Known as Model G3-3CD, this survey meter that exceeds the CVD-700 specifications in size, weight and ruggedness, is said to be smaller,



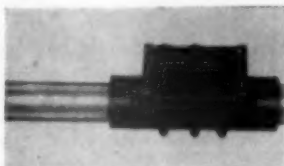
lighter weight and more rugged than similar meters now available. This civil defense meter detects Beta and Gamma radiation. It has three ranges: 0 to .5; 0 to 5; and 0 to 50 milliroentgen per hour. It is waterproof, operates accurately at temperatures from minus 20 F to 125 F. The probe connector is epoxy resin filled so the junction will withstand more than a 200-pound pull. The meter uses two flashlight "D"

cells and three 45 volt miniature "B" batteries. Battery leakage to the electronic circuit is prevented by a battery shelf which separates batteries and electronic circuit.

Nuclear Measurements Corp., 2460 Arlington Ave., Indianapolis 18, Ind. (Item 26)

Sight Flow Indicators

This sight flow indicators can be installed in existing pipe lines as well as in new installations. They are made in transparent two-window and one-window and reflex



one-window types. The chambers of these indicators have end connections of $\frac{1}{2}$ inch, $\frac{3}{4}$ inch female and 1 inch male and are fabricated from $1\frac{1}{2}$ inch bar stock. Chambers of those with end connections of $1\frac{1}{4}$ inch, $1\frac{1}{2}$ inch female and 2 inch male are made of 2 inch I.D. seamless steel tubing. Connections are also available with 150 pound and 300 pound flanged ends or beveled for welding.

Visibility of liquid flow is improved in these indicators by obtaining turbulence through the interrupted bore of the fitting. The reflex type flow indicator is used where the main objective is to show only whether or not there is liquid in the line. When liquid is flowing the glass will show black, due to the specially designed prismatic window; when the line is empty the glass will show a silver-white color.

Jerguson Gage & Valve Co., 87 Fellsway, Somerville 45, Mass. (Item 27)

Exit Sign

Here is a new hinged, surface-type exit sign adaptable to a wide variety of building requirements. With the aid of interchangeable parts, this one basic die-formed unit can be converted to either single or



double face use; can be mounted from the top, back side, or from a pendant. Metal parts are finished in hard baking enamels and are rust proof. Two face styles are available: a hinged metal stencil face with 6-inch letters on a fired green or red glass backing or 6-inch letters on a fired ceramic glass panel, in four color combinations. Underwriters Laboratories approved.

The Perfectlite Co., Cleveland, Ohio. (Item 28)

Ointment Dispenser

This dispenser for protective ointments is made of white plastic and can be attached to any flat surface. It delivers small amounts of ointment by a squeeze of the thumb and forefinger. This type dispenser is claimed to offer a saving of ointment, no lost caps, quick and sanitary dispensing without messiness.

Hygiene Research Inc., 684 Broadway, New York 12. (Item 29)

Circuit Breaker

In underground cables in higher voltage 480/277 volt systems as well as on 208/120 volt systems, the CP-6 Amp-trap is claimed to protect the cable and associated equipment against faults of both high and low magnitude, yet permits continuous operation at full normal rated ability.

Short circuit tests on the 4/0 and 500 MCM CP-6 Amp-trap, rated at 100,000 RMS amperes interrupting capacity, have stopped short circuits as high as 200,000 amperes at 535 volts. With lightning-fast action the CP-6 limits the fault current to about 10% of its maximum available value and clears the fault in less than one-quarter cycle.

Designed for use in circuits 600 volts AC and lower, this device may be used in runs between transformers, customer's tap off and customer's entrance service. Available with tubular, blade or rod terminals for any AC network. Glass-fabric melamine tubing construction prevents buckling.

The Chase-Shawmut Co., Newburyport, Mass. (Item 30)



Can Cart

All metal parts of this cart are of welded construction. Wheels have hard rubber tires; the grip at the end of the handle is of non-slip plastic. The cart is designed to lift



up to 200 pounds. It can be used in the hand-haulage of any material that can be stored in round metal, wood or cardboard containers. The can is tilted so that the bottom rim fits into the slots of the two legs of the cart, and a hook fits over the handle of the can. The cart is 38½ inches high with 30-gallon capacity.

Can-Cart Mfg. Co., Burlington, N. C. (Item 31)

Fire Resistant Curtains

According to the manufacturer, fire which might destroy industrial curtains and partitions and spread to other parts of a building are checked by the use of the Duratex



curtains. Duratex consists of a fabric base woven of fiberglass or nylon yard coated with synthetic plastic resins; it will not harden, crack or peel. Because of their inability to support combustion, Duratex fabrics can be used for welding curtains and as electrical insulating blankets. It is light weight, strong and resistant to water, oil, grease, alkalis and most acids. The standard fabric comes in three weights each in fiberglass and nylon.

Duracore Corp., Ravenna, Ohio. (Item 22)

Waterless Skin Cleaner

Containing lanolin, SBS-30 is a super-refined, cosmetic grade waterless cleanser that is now available in a new 16 ounce metal container. According to the manufacturer, the new package was developed for companies who have special need for a waterless cleanser in a non-

breakable container. SBS-30 can be used for cleansing of industrial



grimes, greases, paints, oils and other irritating soils.

Sugar Beet Products Co., Saginaw, Mich. (Item 23)

Hand Trucks

A new line of trucks has been announced, equipped with non-mar and easier operating stair glides. The glide assemblies are equipped with rubberized fabric V-belts which it is claimed will not damage stairs having finished surfaces. The assemblies are positioned to permit a movement parallel to slope of curbs or stairs. The trucks can be used to handle

cases, crates, cartons, kegs, bags, drums or barrels. All are of electrically welded tubular steel with a choice of single or double handles and open or solid plate noses in 5 inch, 7 inch, or 9 inch lengths. Frame size is 14 inches x 47 inches high with a choice of 6 inch or 10 inch roller bearing, semi-pneumatic rubber tired wheels for both outdoor and indoor use.

Notting Truck & Caster Co., 1201 W. Division St., Faribault, Minn. (Item 34)

Cleaner and Disinfectant

A washroom fixture cleaner and disinfectant known as Out has been introduced recently. "Out" is said



to perform four jobs in one—cleaning, disinfecting, sanitizing and deodorizing. It can be used on ceramic,

porcelain, and porcelain enamel surfaces, vitreous and non-vitreous, without injury to the finish. No gloves or special handling is necessary.

Out is a liquid cleaner, medical blue in color, and comes packaged in half-gallon and gallon jugs. The wide mouthed jug permits a mop to be dipped directly into the cleaner. Mops and check-mirrors are included.

Fuld Brothers, Inc., 702 S. Wolfe St., Baltimore 31, Md. (Item 35)

Relief Valves

The multiport relief valve is designed to provide safe and smooth relief of overpressure in systems or equipment, and to eliminate waste of steam, air or gas by over-relief. The valve discs are said to hold tight against operating pressures whether steady, fluctuating or pulsating, and open slowly only to the extent required to bleed off overpressure. Valve discs close slowly with receding vapor pressure to initial relief pressure to seal the system against unwanted bleeding. Pressure relief is accomplished without valve slamming, backsurge or vapor hammer.

Made of corrosion-resistant metals, the multiple discs are held seated by adjustable springs. Valves are made in sizes from 4 inches to 48 inches in vertical up-flow, horizontal or angle types. Three main construction types correspond to overall set pressure ranges.

Cochrane Corp., 3130 North 17th St., Philadelphia. (Item 36)

Work Positioner

A spring-type work positioner, designed to provide a work table which positions to any desired



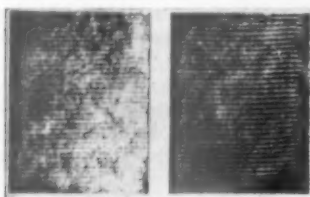
height, has been developed. This is a mobile unit which adjusts to table heights by a series of calibrated springs. The table travels vertically along channels, the distance of travel being controlled by the number of springs attached. Each spring is calibrated to 100 pounds capacity

and the capacity may be changed by removing or adding springs. The standard work positioner has a capacity of 1000 pounds and will move loads up to or down from the 42 inch level above the floor. Dimensions are 24" x 36" x 60" high. Table bed is 24" x 30". The unit has four casters and a handle for ease in moving from one work area to another.

Rack Engineering Co., 167 Sixth St., Connelville, Pa. (Item 37)

Waterproofing Material

A new mildew-resisting, waterproofing material, developed by the B. F. Goodrich Company Industrial Products Division and applied to fire hose jackets, resists moisture absorption and mildew attack. The new material is called "Superseal."



Buried in ground inoculated with mildew-producing bacteria, hose treated with Superseal retained 96 per cent of its original strength after eight weeks while untreated hose in the same test succumbed to mildew attack and literally fell apart when removed. The water-repellant action of Superseal maintains hose flexibility in weather conditions that freezes the covers of conventional hose. The Superseal treatment is available in all sizes of fire hose used by municipal fire departments, in industry, institutions and military use.

B. F. Goodrich Co., 500 Main St., Akron, Ohio. (Item 38)

Press Brake Back Gauge

This new electro-magnetic back gauge safety device positions the



work correctly eliminating mistakes and spoilage as well as finger and

hand injuries says the manufacturer. The gauge holds the material while the ram is in motion enabling the operator to keep his hands clear. The operator does not have to "feel" whether the sheet is against the back stop since it is magnetically drawn to it. Accuracy is maintained because the magnetic force draws the material evenly to the gauge and holds it securely. This prevents rocking of oblong pieces.

The gauge will also form several pieces simultaneously, making it unnecessary to stop after each individual bend to turn the piece for the second bend. Current to the gauge block is automatically supplied by a magnetic gauge control.

American Actuator Corp., 219 East 44th St., New York 17. (Item 39)

Floor Patching Material

Vyniflex is a new floor patching and resurfacing material that is claimed to have strong adhesion to any clean surface, even if damp, assuring perfect feather-edge patching, grouting, repointing of tile or brick or resurfacing. It is designed for floors subject to acids, alkalis, salts, oils, grease, etc. It is shock-proof, non-flammable, and easily installed. Can be used on concrete, wood, asphalt, metal, brick or composition, and overlays can be made at only 1/8 of an inch.

Flexrock Co., 3635 Filbert St., Philadelphia 1. (Item 40)

News Items

William H. Loveman, president, American Industrial Safety Equipment Co. of Cleveland, Ohio, has announced the appointment of Donald T. O'Shea as manager of the Industrial Sales Division. In this capacity Mr. O'Shea will head a department which will be directly concerned with present day problems of eye protection in major industries, and the development of new devices to solve them.

Mr. O'Shea, who is a member of the American Society of Safety Engineers, has had a number of years of experience in the industrial safety field dealing with industrial concerns, utilities and railroads concentrating on head and eye protection devices.



James McMillan was elected president of the Boyer-Campbell Company, pioneer Detroit distributors of mill supplies and industrial

and safety equipment. Mr. McMillan, formerly vice president and treasurer, succeeds William P. Goudie, who is entering semi-retirement after more than 40 years of service with the organization. Mr. McMillan will be associated in the management of the business with Robert G. Campbell, who was re-elected vice-president and secretary, and John F. Phillips, re-elected vice-president in charge of sales.



The Aluminum Company of America distributors are now offering a complete line of aluminum sign materials. In conjunction with this new service for customers, Alcoa has announced the appointment of Melvin R. Schuster as market supervisor for the sign industry. Mr. Schuster has served in production, sales and construction engineering capacities for the company. He was last assigned to the Commercial Research Division as a market analyst.

We'll find more of the milk of human kindness on our doorstep when we remember to return the empty bottles.

It's been said that most women are like baseball umpires. They make quick decisions, never reverse them, and they don't think you're out when you're out.

Cooperation would solve most of our problems. For instance, freckles would be a nice coat of tan if they could get together.

It has finally been determined what is meant by the hammer and sickle on the Russian flag. The sickle is to mow 'em down, and the hammer is to keep 'em that way.

TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.



1. Lifting Equipment: This bulletin is divided into four sections: shop lifters, work lifters, elevating tables, and trucks; custom-built hand and electric lifters; drum racks; high-reach maintenance telescopes. 44 pages. Economy Engineering Co.

2. Work Gloves: Several types of neoprene-, rubber-, and plastic-coated gloves are shown here. Performance chart shows wearing properties of each type and chemical resistance to organic and inorganic acids and solvents, oils, grease. Hood Rubber Co.

3. Cut Accident Costs: You can cut accident costs by getting safety messages right to the worker through the use of paper cups imprinted with safety slogans, according to this folder, which also points out the hygienic and morale advantages of providing individual sanitary cups. U. S. Envelope Co.

4. Protective Maintenance and Service Items: 10-page, 2-color catalog describes and illustrates aprons, work clothes, gloves, canvas and plastic special items, industrial cotton bags, fire blankets, welder's curtains, hand pads, safety caps, protective covers, headbands and many other institutional products. Associated Bag and Apron Co.

5. Fire Truck Chassis: Striking color photographs illustrating the broad range of application of specialized fire truck chassis featured in this catalog. The 12-page publication comprehensively describes the balanced series of truck International engineers and manufactures specifically for mounting fire apparatus. Photographs of trucks in fire fighting service and engines which power each and condensed specifications cover the medium-duty the heavy-

duty; and the biggest truck of the series manufactured by the company. International Harvester Co.

6. Loading Dock Shield: Bulletin describes and illustrates a loading dock shield designed to fit standard size railroad or truck dock doors. Provides weatherproof protection by enclosing top and sides and provides thorough drainage to the sides, giving a no drip, safe and draft free dock during loading and unloading operations. The canvas in this collapsible loading dock shield is fire, water, and mildew resistant. Underwriters' Laboratories approved. Frommelt Industries.

7. Industrial Safety Equipment: This catalog is divided into four major sections which describes and illustrates eye protection, head protection, respiratory protection and welding. Items shown are safety spectacles, cup goggles, monogoggles, protecto-shields, lens materials, welder's goggles and spectacles, welding helmets, respirators, etc. Willson Products, Inc.

8. Alarm Box: Bulletin describes and illustrates a "Sound-Off" alarm box which can be attached to any fire extinguisher. When a fire extinguisher is lifted from its bracket, a loud horn in the alarm box instantly alerts everyone in the vicinity that there is a fire and help is needed or someone is stealing the fire extinguisher. Bulletin gives full details. A-1 Alarm Co.

9. "How to Operate a Lift Truck": 24-page booklet 1214 is packed with information about the operation of a lift truck, preventive maintenance, safety and basic materials handling. Drawings for setting up an obstacle course are also included. Hyster Co.

10. "Fireye Sees Fire": Brochure

describes the Fireye system which is electronic and operates on "electric eye" principles. It detects fire instantly, giving immediate warning. Fireye Corp.

11. Safety Marking Tools: Catalog features devices designed for unusual marking applications and describes stock letter and figure stamps, holders, branders, etc., made from wear-resistant steel. M. E. Cunningham Co.

12. Reflectorized Safety Signs for Industry: 15-page, 2-color catalog illustrates and describes safety signs made with "Scotchlite" reflective sheeting. Shown are: plant area signs, in-plant signs, safety instructional signs and miscellaneous signs. Reflective Products Division, Minnesota Mining and Manufacturing Co.

13. Acid-Resistant Clothing: Catalog shows line of acid and caustic resistant clothing made of Orlon and Dynel synthetic fabrics. Includes shirts, pants, coveralls and coats. Testing data giving resistance of fabrics to specific chemicals shown. Resistal Work Clothes, Inc.

14. Non-Slip Flooring: Algrip, an abrasive rolled steel floor plate described as non-slip even on steep inclines is the subject of this booklet. Discusses safety features; gives fabricating data, sizes, allowable loads. Alan Wood Steel Co.

15. Emergency Showers: Full operating details of an emergency and decontamination shower for fire, acids, caustics, radiological, bacteriological and other contaminants are offered in this booklet S-75. Unique features emphasized are the multiple sprays arranged to deluge all parts of the body. Speakman Co.

16. Drunkometer: Folder describes the Harger breath test for alcohol. A simple, portable apparatus for the measurement of intoxication by analysis of the breath. Stephenson Corp.

17. "How to Put Rope to Work in Industry": 32-page catalog fully describes how to put rope to work in industry, selecting the right rope, proper use and care, safe loads, how to check your rope for signs of wear, splicing vs. knots, etc. Plymouth Cordage Co.

18. Waterless Washstation: The waterless wash-station described in this brochure is set up near places of work so that employees do not have to go to the washroom every time their hands get dirty. Cleanser is said to get out heavy soil without water or other solvent. Specifications and details are explained, as well as applications in various industries. Sugar Beet Products Co.

19. Electrical Clutch Control: Light and rapid control freedom for operator, and "uncheatable" safety are important features of press switches in this catalog. Illustrations and detailed text cover line of foot, hand, foot and hand, clutch control, limit and many other switches. Chart of equipment needed for different means of control included. Micro-Switch.

20. Safety Treads: Sectional catalog has full-size cross-section illustrations of groove and abrasive treads, cast and abrasive thresholds, plates, curb bars, window and elevator sills, etc. Explanatory installation sketches. Wooster Products, Inc.

21. Fire Exit Hardware: Catalog describes a line of self-releasing fire exit latches and devices for all type doors. Specifications and suggestions on adequate doors and hardware for each fire exposure situation. Vonnegut Hardware Co.

22. Floor Absorbent: Safety and all-purposeness are central features of floor absorbent detailed in comprehensive brochure. Use of floor absorbents in industry explained. Waverly Petroleum Products Co.

23. Safety Shoes: This well illustrated brochure covers the company's line of safety shoes. Dress shoes with steel toe caps have special lining to cut down sock wear under the steel toe. Comfort is emphasized in all types. Work shoes are discussed and special safety shoes to resist chemicals are featured. Record Industrial Co.

24. Impregnated Salt Tablets: Bulletin outlines the need and use of salt tablets to combat heat fatigue. Tablets are impregnated to make them dissolve slowly to avoid nausea. Available with disposable dispensers, and a steel wall-mounted dispenser holder to make dispensers weather-proof. U. S. Safety Service Co.

25. Ventilators and Fans: Ventilators, blowers, exhausters, of the axial flow and centrifugal types, and fans are pictured and described in catalog. Suggested applications given for each product and diagrams giving dimensions and specification included. Coppus Engineering Corp.

26. Swing Stage: Folder about scaffolding and rigging equipment, operated either by air or electric power. Includes swing stages, stirrups, transfer chains, I-beam rollers, and scaffold accessories. Has automatic braking system, guard-rail holders, and safety cut-out switch. Albina Engine and Machine Works, Inc.

27. Hand Dryer: An electric hand dryer for washrooms is discussed and explained in this 4-page, 2-color pamphlet. Among advantages listed are rapid drying, ozonating, deodorizing, no maintenance and cost saving. Specifications are listed and adjustable nozzle for face-drying is illustrated. American Drying Corp.

28. Insul-8-Bar: 28-page catalog describes the Insul-8-Bar enclosed conductor systems for the safety electrification of cranes and monorails. Explains the principals of these insulated systems, and shows why they meet all crane and monorail requirements without the need for special engineering. It contains an illustrated parts lists, engineering data, and other pertinent information. Insul-8-Corp.

29. Safety Signs: Bulletin describes complete line of safety signs available in 4 sizes and in the color appropriate to the hazard. Signs may be engraved plastic or painted metal. Great variety of wordings shown. Sargent & Sowell, Inc.

30. Color Painting Plan: Detailed in this booklet is a plan for making the best use of color in industrial painting. The general rules about the use of color begin the literature,

the various highlighting and relaxing uses of color to prevent eye-strain in industry continue the story, and the psychological values of proper colors in painting finish the editorial material. Illustrated in several colors, the booklet also suggests colors of paint to buy, and describes the use of color in safety. E. I. du Pont de Nemours & Co., Inc.

31. Oilers and Oil Containers: 28-page catalog No. 55-C shows complete line of oiling equipment, filling cans, and containers for hazardous liquids. Each product pictured, described, and specifications given. Eagle Manufacturing Co.

32. Floor Resurfacer: A floor patching and resurfacing material, ready mixed for use, is described in this bulletin, which points out that the material may be applied to a wet or dry surface, indoors or out, and does not require special equipment or skilled labor. Permamix Corp.

33. Protection for Field Personnel: Insect repellent and poison plant medication discussed in brochure. Packaging information given and it is shown how safety, comfort and efficiency in field personnel may be increased by protecting against insects and poison plants. Medical Supply Co.

34. Germicide: An annotated bibliography on results achieved with hexachlorophene, this 24-page booklet gives various reports on the effectiveness of the germicide and antiseptic. Value of the booklet is that the reports are unedited or changed and are chiefly made by disinterested investigators. The antiseptic is supposed to be more effective than a normal surgical wash-up. Sindar Corp.

35. Bridge-Floor Surfacing: A resurfacing for open-grid steel bridge floors is described in this four-page folder. A machine which serrates the flooring to give better grip to tires is illustrated and detailed. Typical installations are also covered. Serrated steel flooring of several types for new bridge construction is also dealt with in the bulletin. Reliance Steel Products Co.

36. Hand Pumps: Applications of hand pumps to transferring liquids on many different types of jobs is discussed in this brochure. Cross-sectional diagram of pump with the new measure-type gauge featured. Blackmer Pump Co.

Want More Information?

... the Reader Service postcard will get it for you FAST!

Here's how it works—

Printed below are two identical Reader Service postcards—the bottom one for your use; the top one for later readers of this issue. The numbers listed on each card are keyed to product advertised and the new safety equipment and trade publications described on

pages 143 through 151. Just circle the items you want to know more about, and we will ask the manufacturer to send you full information without obligation. Both cards are perforated for easy removal, and no postage is required.

New Safety Equipment

Products featured in this section have been carefully reviewed by Council engineers so as to bring you only what's new and reliable in the safety field. Only new safety and health products, or newsworthy improvements in existing equipment are eligible for listing.

Trade Publications

Here's a wealth of helpful trade literature—catalogs, spec sheets, booklets, brochures—that will help you compare before you buy. Whether you are in the market now, or think you may be at a later date, you'll want these valuable references in your safety equipment data file.

Products Advertised

As you read through this issue of the NEWS, you will find advertisements describing equipment that may help you solve some of your accident problems. Instead of making a "mental note," make sure you get full information by circling the corresponding page number on the Reader Service postcard. The letters L, R, T and B locate the ads on the page—left, right, top and bottom. IFC—inside front cover; IBC—inside back cover; BC—back cover.

IMPORTANT—Be sure to fill in your name, organization and address in the space provided on this side of the postcard.

National Safety News, May, 1955

Please send me more information on the items circled below:

MAY, 1955
(Good until July 30, 1955)

NEW SAFETY EQUIPMENT SECTION:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
35	36	37	38	39	40											

TRADE PUBLICATIONS SECTION:

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PRODUCTS ADVERTISED:

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NAME.....
POSITION.....
COMPANY.....
ADDRESS.....
CITY & STATE.....

Please send me more information on the items circled below:

MAY, 1955
(Good until July 30, 1955)

NEW SAFETY EQUIPMENT SECTION:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
35	36	37	38	39	40											

TRADE PUBLICATIONS SECTION:

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19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

PRODUCTS ADVERTISED:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238</
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The advertising pages of the News

. . . your guide to reliable suppliers of worthwhile safety equipment

The advertising policy of the NEWS requires that all equipment and products meet established codes and standards, have the approval of recognized testing agencies, or have proven their value through actual use in industry. Council engineers and technicians screen every

advertisement to make sure that product description is accurate, and performance claims verified by reliable sources. It should not be construed, however, that products advertised are approved or endorsed by the National Safety Council.

FIRST CLASS
PERMIT No. 834
CHICAGO, ILL.

BUSINESS REPLY CARD

No Postage Stamp Necessary If Mailed in the United States

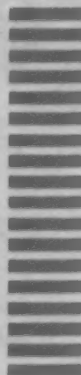
4c—POSTAGE WILL BE PAID BY—

Reader Service Department

NATIONAL SAFETY NEWS

425 NORTH MICHIGAN AVENUE

CHICAGO 11, ILLINOIS



FIRST CLASS
PERMIT No. 834
CHICAGO, ILL.

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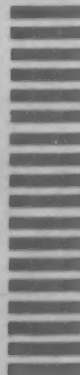
4c—POSTAGE WILL BE PAID BY—

Reader Service Department

NATIONAL SAFETY NEWS

425 NORTH MICHIGAN AVENUE

CHICAGO 11, ILLINOIS



Before you mail your
Reader Service
postcard . . .

TAKE ANOTHER LOOK AT

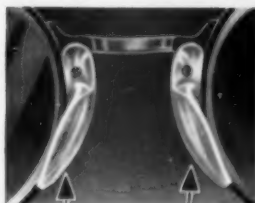
- the ADVERTISING pages
- the NEW SAFETY EQUIPMENT section
- the TRADE PUBLICATION section

Make sure all the items you want to know more about are circled . . . check to make sure your name, organization, and address are printed on the reverse side of the postcard . . . THEN mail it today.

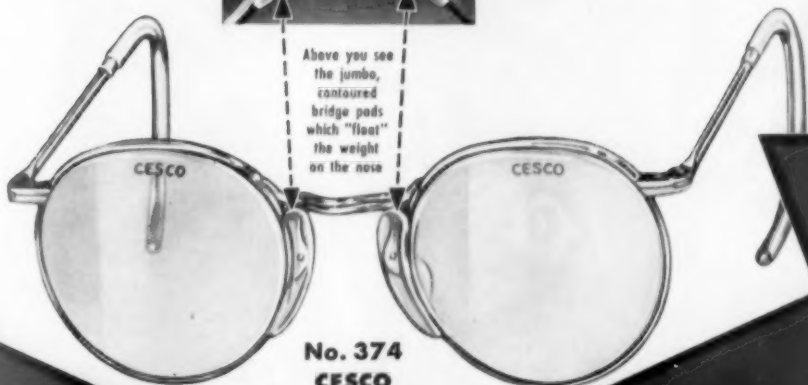
CESCO

RIGHT...
before your Eyes!

Broad-Bearing* COMFORT-BRIDGE SPECTACLES



**Now available
with flexible
polyethylene pads*



**No. 374
CESCO
Comfort-Bridge
Spectacle**

• The secret "weight-less" feel of CESCO Spectacle-Type Goggles with patented Comfort-Bridge lies in the face-fitting design of the broad-bearing bridge pads. The combination of large bearing area and anatomically correct contours rests the weight gently and evenly on the sides of the nose.

Comfort-Bridge Spectacle-Type Goggles are worn all day without discomfort...or complaint. They're a big aid to safety because they close the dangerous gap between nose and goggle frame that results when using

many conventional type bridge pads.

Now furnished with regular rigid plastic or the new F-9P flexible polyethylene pads for even greater comfort and correct fit on those workers with unusual nasal contours.

• • •

You can get Comfort-Bridge Spectacle-Type Goggles in a complete range of bridge and lens sizes, with or without side-shields, and with clear Super-Safety or Antiglare lenses. Call your CESCO distributor at once or write direct for further information.

CHICAGO EYE SHIELD COMPANY • 2306 Warren Boulevard, Chicago 12, Illinois

OFFICES IN: Atlanta, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Detroit, East Orange, Houston, Indianapolis, Kansas City, Knoxville, Little Rock, Los Angeles, Louisville, Mexico City D.F., Milwaukee, Montreal, Peoria, Philadelphia, Pittsburgh, Salt Lake City, San Francisco, Spokane, St. Louis, St. Paul, Toledo, Tulsa, Wichita

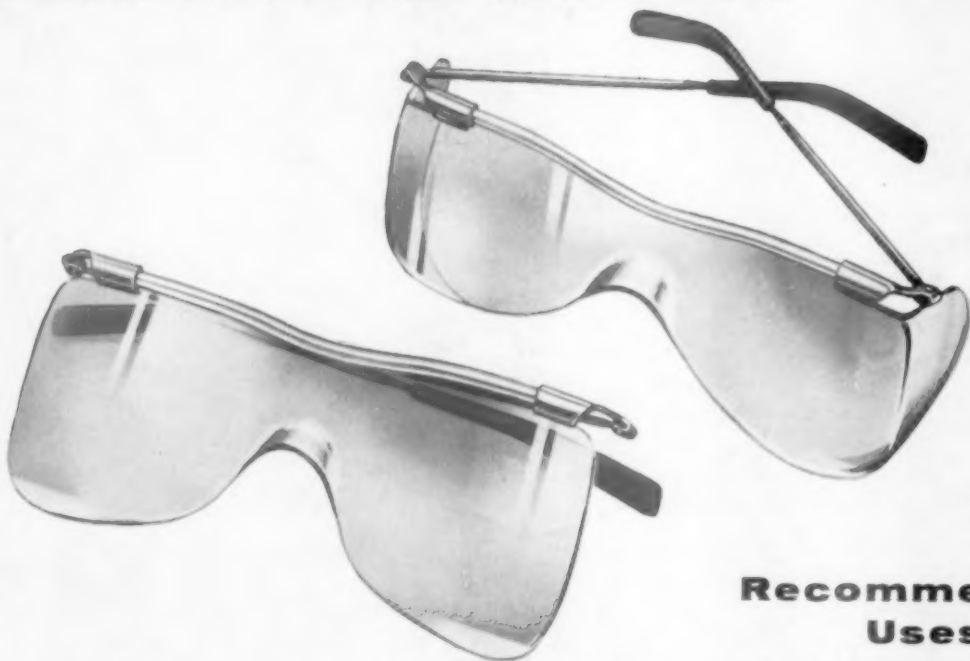


CESCO FOR SAFETY



All-Plastic Goggles

Now...AO[†] INTRODUCES TWO LIGHTWEIGHT SPECTACLE GOGGLES WITH COMPLETE INTERCHANGE OF LENSES AND TEMPLES!



Recommended Uses

Illustrated are Nos. 786 and 787 — two of the latest and lightest AO All-Plastic Lens Goggles, with noncorrosive endpieces and metal skull temples. In the field of lightweight eyecare they show the same benefits of applied engineering as AO's goggles for heavier exposures.

Lenses, endpieces, and temples can be easily replaced or assembled. One-piece lenses of either clear or green acetate have high impact resistance. Replacement is simple — just slide off the endpieces and reassemble. No. 786 is ideal for use over regular spectacles for temporary or "on and off" wear. Model 787 is identical except that it has side shields for added protection against laterally flying particles.

For hot weather, hot job comfort . . .
keep production up with AO Sweatbands.

(1) For light grinding, light machining, spot welding, woodworking, yard work where dust hazards exist, and for protecting R Safety Glasses or regular glasses.

(2) For plant visitors and others who may be exposed to eye hazards for short periods.

Keep an adequate supply of these goggles (and extra lenses) on hand always for good fitting. Check with your nearest AO Safety Products Representative.

American Optical



SAFETY PRODUCTS DIVISION

†T.M. Reg. by
American Optical Company

SOUTHBIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES